

<210> 2072

<211> 517

<212> PRT

<213> Neisseria meningitidis

<400> 2072

Met Pro Ser Glu Arg Ser Ala Asp Cys Cys Pro Ala His Phe Val Val  
1 5 10 15

Lys Phe Arg Lys Ser Thr Leu Asn Cys Gly Arg Arg Phe Asp Arg Pro  
20 25 30

Pro Ile Asn Gly Asn Arg Gln Arg Lys Pro Met Ile His Thr Glu Pro  
35 40 45

Ser Ala Gln Pro Ser Thr Met Asp Thr Ala Ala Phe Leu Lys His Ile  
50 55 60

Glu Ser Ala Phe Arg Arg Ile Phe Ser Asp Gly Ile Asp Leu Met Arg  
65 70 75 80

Tyr Leu Pro Glu Asp Lys Trp Leu Ala Leu Lys Gln Ala Gly Leu Leu  
85 90 95

Leu Pro Phe Leu Asp Lys Lys Tyr Gly Gly Arg Lys Gly Ser Gln Phe  
100 105 110

Glu Ile Gln Glu Val Leu Arg Ile Ala Gly His Tyr Gly Val Pro Val  
115 120 125

Thr Leu Arg Thr Gly Ile Glu Gly Ala Leu Val Leu Gln Pro Leu Gln  
130 135 140

Glu Phe Gly Asp Glu Ala Gln Val Ala Gln Gly Leu Glu Met Ile Phe  
145 150 155 160

Lys Gly Glu Gly Gly Gly Leu Gly Val Thr Glu Pro Glu Thr Ser Gly  
165 170 175

Ala Ala Ile Ala Arg Glu Met Gln Ser Tyr Tyr Glu Tyr Ile Asp Gly  
180 185 190

Gln Thr Ile Tyr Val Asn Ala Ala Lys Tyr Trp Gln Gly Asn Ser Gln  
195 200 205

Ser Asp Phe Leu Leu Val Ala Ala Lys Glu Arg Lys Asn Gly Lys Leu  
210 215 220

Ala Lys Val Ile Asp Leu Leu Leu Val Pro Lys Thr Tyr Ile Arg Cys  
225 230 235 240

Glu Thr Leu Ala Ser Glu Gly Leu Arg Ala Val Arg Tyr Ala Val Asn  
245 250 255

Arg Ile Asp Ala Glu Met Pro Ala Thr Ala Val Met Lys Leu Ser Gln  
260 265 270

Ser Asp Ala Ala Gly Leu Arg Ala Phe Gln Asn Ile Phe Ile Arg Ser  
 275 280 285  
 Arg Leu Gln Leu Ile Gly Met Thr His Gly Ile Met Glu Tyr Ile Leu  
 290 295 300  
 Glu Asn Leu Glu Arg Tyr Val Arg Asn Asp Ile Lys Phe Val Asp Tyr  
 305 310 315 320  
 Glu Arg Arg Glu Ile Arg Arg Arg His Gln Val Ser Glu Ile Leu Tyr  
 325 330 335  
 Arg Tyr Val Cys His Ser Val Ser Pro Val Ala Pro Val Ala His Gln  
 340 345 350  
 Leu Met Glu Ala Asn Ile Val Lys Thr Leu Ala Thr Glu Tyr Thr Tyr  
 355 360 365  
 Ala Ala Ala Gln Met Leu Gln Lys Leu Leu Gly Ala Lys Gly Phe Glu  
 370 375 380  
 Arg Gly His Thr Ala Gly Asn Ile Ala Ile Asp Ile Arg Pro Phe Thr  
 385 390 395 400  
 Ile Phe Glu Gly Pro Asn Asp Met Leu Tyr Ala Glu Ile Tyr Asp Gln  
 405 410 415  
 Phe Val Arg Ala Thr Ala Glu Glu Lys Glu Ala Gly Met Lys Leu Asp  
 420 425 430  
 Lys Asn Gln Thr Leu Leu Asp Arg Leu Gln Thr Asp Ala Arg Phe Ala  
 435 440 445  
 Ala Val Ala Arg Asp Tyr Thr Leu Pro Glu Asp Ile Arg Ser Phe Leu  
 450 455 460  
 Gln Glu His Thr Leu Thr Asp Ala Cys Ala Leu Gln Lys Val Phe Ile  
 465 470 475 480  
 Gly Lys Ile Ile Ala Arg Leu Phe Val Phe Val Gln Ala Lys His Glu  
 485 490 495  
 Asp Thr Ala Ala Phe Leu Leu Asn Asp Ile Arg Lys Asp Ile Leu Asp  
 500 505 510  
 Cys Arg Tyr Cys Gly  
 515

<210> 2073

<211> 1554

<212> DNA

<213> Neisseria meningitidis

<400> 2073

atgccgtctg aaaggtcggc ggattgttgc ccggcgcaact ttgttggtaaa gtttagaaaa 60  
 tcaactctaa actgtggcag gcggtttgac cggccgccga ttaatgggaa ccgacagagg 120



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aagccgatga tacacaccga accgagcgcg cagccgtcaa ctatggacac ggctgctttt 180
ttaaagcaca tcgaatccgc attccgcgcg atttttgcag acggtatcga cctgatgcga 240
tacctgcccc aagacaaatg gcttgccctg aagcaggcgg gtttgctgtt gcccttcctc 300
gacaaaaaat acggcgggcg caagggcagc cagtttgaaa ttcaggaagt cttgcggatt 360
gcggggcatt acggcgtgcc cgttannnnn nnnnnnnnnn nngaaggcgc gctgggtgtt 420
cagccactgc aagagttcgg cgatgaagcg caaatcgcac agggtttgga catggttttc 480
aaaggcgagg gcggcggttt aggcgttacc gaacccgaaa cctccggcgc ggcgattgcc 540
cgagaaatgc agtcttacta cgaatatacc gacggacaaa ccatttacgt caacgccgcg 600
aaatactggc agggcaactc gcaaagcgac ttctctctcg ttgccgcaa agagcgcaaa 660
aacggcaaac tcgcaaagt catcgacctg ctgctcgctc caaaaacata catccgctgc 720
gaaaccctcg catccgaagg cttgcgcgcc gtccggttac ccgtcaaccg catcgatgcc 780
gaaatgcctg caaccgcctg gatgaaactc tcccagagcg acgctgccgg tttgcgcgcg 840
ttccaaaaca tctttatccg cagccgcctg caactgatcg gcatgacgca cggcattatg 900
gaatacacc ttgaaaacct ggaacgatac gtccgcaacg acatcagatt cgtcgattac 960
gaacgcgcgc aaatccggcg ccgccatcag gtttccgaga ttctttacog ctacgtctgc 1020
cattccgttt cggccgttgc acccgtcgcc catcaactga tggaggcgaa catcgtcaaa 1080
acctcgcca cggaatacac ttacgcgcgc gcgcaaatgt tgcaaaaact cttgggcgcg 1140
aagggttttg aacgcggaca caccgcgcgc aatatcgcta tcgacatccg ccccttcacg 1200
atttttgaag gccggaacga tatgotttat gccgaaattt acgaccagtt tgtccgcgcc 1260
accgccgaag aaaaagaagc aggcataag ttggacaaaa accaaaccct gctcgaccgc 1320
ctgcaaacgc atgcccgtt tgccgcgcgc gccgcgcact acactttgcc cgaagacatc 1380
cgcagcttcc tgcaggaaca caccctgacc gatgcctgcg ccctgcaaaa agtctttatc 1440
ggcaaaatca tcgcccgact ctttgtcttc gtacaggcgg aacacgaaga caccgcagcc 1500
ttctgctga acgacatccg caaagacata ttggactgcc gatattgcgg atag 1554

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<210> 2074

<211> 517

<212> PRT

<213> *Neisseria meningitidis*

<400> 2074

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Met Pro Ser Glu Arg Ser Ala Asp Cys Cys Pro Ala His Phe Val Val
  1                      5                      10                      15

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Lys Phe Arg Lys Ser Thr Leu Asn Cys Gly Arg Arg Phe Asp Arg Pro
      20                      25                      30

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Pro Ile Asn Gly Asn Arg Gln Arg Lys Pro Met Ile His Thr Glu Pro
      35                      40                      45

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Ser Ala Gln Pro Ser Thr Met Asp Thr Ala Ala Phe Leu Lys His Ile
      50                      55                      60

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Glu Ser Ala Phe Arg Arg Ile Phe Ala Asp Gly Ile Asp Leu Met Arg
      65                      70                      75                      80

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Tyr Leu Pro Glu Asp Lys Trp Leu Ala Leu Lys Gln Ala Gly Leu Leu
      85                      90                      95

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Leu Pro Phe Leu Asp Lys Lys Tyr Gly Gly Arg Lys Gly Ser Gln Phe
      100                      105                      110

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Glu Ile Gln Glu Val Leu Arg Ile Ala Gly His Tyr Gly Val Pro Val
      115                      120                      125

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Xaa Xaa Xaa Xaa Xaa Xaa Glu Gly Ala Leu Val Leu Gln Pro Leu Gln

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130	135	140
Glu Phe Gly Asp Glu Ala Gln Ile Ala Gln Gly Leu Asp Met Val Phe 145 150 155 160		
Lys Gly Glu Gly Gly Gly Leu Gly Val Thr Glu Pro Glu Thr Ser Gly 165 170 175		
Ala Ala Ile Ala Arg Glu Met Gln Ser Tyr Tyr Glu Tyr Thr Asp Gly 180 185 190		
Gln Thr Ile Tyr Val Asn Ala Ala Lys Tyr Trp Gln Gly Asn Ser Gln 195 200 205		
Ser Asp Phe Leu Leu Val Ala Ala Lys Glu Arg Lys Asn Gly Lys Leu 210 215 220		
Ala Lys Val Ile Asp Leu Leu Leu Val Pro Lys Thr Tyr Ile Arg Cys 225 230 235 240		
Glu Thr Leu Ala Ser Glu Gly Leu Arg Ala Val Arg Tyr Ala Val Asn 245 250 255		
Arg Ile Asp Ala Glu Met Pro Ala Thr Ala Val Met Lys Leu Ser Gln 260 265 270		
Ser Asp Ala Ala Gly Leu Arg Ala Phe Gln Asn Ile Phe Ile Arg Ser 275 280 285		
Arg Leu Gln Leu Ile Gly Met Thr His Gly Ile Met Glu Tyr Thr Leu 290 295 300		
Glu Asn Leu Glu Arg Tyr Val Arg Asn Asp Ile Arg Phe Val Asp Tyr 305 310 315 320		
Glu Arg Arg Glu Ile Arg Arg Arg His Gln Val Ser Glu Ile Leu Tyr 325 330 335		
Arg Tyr Val Cys His Ser Val Ser Pro Val Ala Pro Val Ala His Gln 340 345 350		
Leu Met Glu Ala Asn Ile Val Lys Thr Leu Ala Thr Glu Tyr Thr Tyr 355 360 365		
Ala Ala Ala Gln Met Leu Gln Lys Leu Leu Gly Ala Lys Gly Phe Glu 370 375 380		
Arg Gly His Thr Ala Gly Asn Ile Ala Ile Asp Ile Arg Pro Phe Thr 385 390 395 400		
Ile Phe Glu Gly Pro Asn Asp Met Leu Tyr Ala Glu Ile Tyr Asp Gln 405 410 415		
Phe Val Arg Ala Thr Ala Glu Glu Lys Glu Ala Gly Met Lys Leu Asp 420 425 430		
Lys Asn Gln Thr Leu Leu Asp Arg Leu Gln Thr Asp Ala Arg Phe Ala		



Arg Ala Ser Gly Ser Arg Val Ser Ser Arg Ser Arg Ile Phe Ser Ile  
 50 55 60  
 Val Ser Thr Ser Leu Cys Arg Lys Asn Thr Cys Pro Pro Arg Leu Ser  
 65 70 75 80  
 Ser Arg Asn Thr Ala Ser Arg Thr Leu Pro Ser Leu Asn Gly Leu Thr  
 85 90 95  
 Lys Val Phe Thr Ala Arg Arg Arg Leu Gly Ala Val Val Ile Ser Glu  
 100 105 110  
 Lys Ser Arg Arg Pro Ser Ser Ala Met Leu Arg Val Arg Gly Ile Gly  
 115 120 125  
 Val Ala Val Met Val Arg Met Ser Thr Leu Ala Arg Arg Arg Leu Ser  
 130 135 140  
 Cys Ser Phe Cys Arg Thr Pro Lys Arg Cys Ser Ser Ser Ile Ile Asn  
 145 150 155 160  
 Lys Pro Lys Phe Leu Asn Phe Met Ser Ser Cys Thr Asn Leu Cys Val  
 165 170 175  
 Pro Ile Thr Ile Ser Thr Val Pro Ser Ala Met Pro Ser Ser Val Ala  
 180 185 190  
 Leu Val Ala Leu Leu Leu Leu Lys Arg Glu Arg Leu Ala Thr Phe Thr  
 195 200 205  
 Gly Lys Ser Ala Lys Arg Ser Ala Lys Phe Cys Ala Cys Cys Ser Thr  
 210 215 220  
 Arg Ser Val Val Gly Ala Ser Thr Ala Thr Cys Leu Pro Pro Ile Thr  
 225 230 235 240  
 Ala Thr Asn Ala Ala Arg Arg Ala Thr Ser Val Leu Pro Lys Pro Thr  
 245 250 255  
 Ser Pro His Thr Ser Arg Ser Ile Gly Phe Ala Cys Val Lys Ser Leu  
 260 265 270  
 Ile Thr Ala Ala Met Ala Ala Ala Trp Ser Ser Val Ser Ser  
 275 280 285

<210> 2077

<211> 861

<212> DNA

<213> *Neisseria meningitidis*

<400> 2077

atgatgatgg tgttggcgtt ggggatatcg ataccggttt cgatgatggt ggaacagagc 60  
 aacacgttaa atcgttgctg caaaaagtcg cgcattgactt gttccagctc gcgctcgcg 120  
 agttgtccgt gcgccacgcc gatgcgggct tcgggcagca gggtttccag ccgctcgcg 180  
 atattttcaa tcgtatctac ttcatgtgc aggaaaaata cctgtcctcc gcgtttgagt 240  
 tcgcgcaaca cggcttcgcg cagctgcct tcgctaaagg gtttgacaaa ggttttgacg 300

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gcgaggcggc ggctgggccc ggtggtaatc agcgagaagt cgcgagtc ccaccaacgcc 360
atacttaaaag tacgcggaat cggcgtggcg gtcattggtaa ggatatcaac attggcgcgc 420
aggcgtttga gctgctcttt ctgacgcacg ccgaagcggg gttcttcgtc gataatcact 480
aaacctaaagt ttttgaattt gatgtcgtcc tgcaccagtt tgtgcgtacc gataacaata 540
tcgaccgtgc cgtctgccat gccttccagc gcggctttgg tggctttgct gttgttgaaa 600
cgcgaaaaggc tggcgacttt cacggggaaa tcggcgaaaac ggtcggcgaa gttttgcgcg 660
tgctgctcga ccaaaagcgt ggtcggagca agtacggcga cctgtttgcc gcccatcacc 720
gccacaaacg cggcgcgagc ggcgacttcg gttttgccga agccgacatc gccgcacaca 780
aggcgatcca tcggcttcgc ttgcgtcaaaa tctttaatca cggcggcgat ggcggcggcc 840
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<210> 2078

<211> 285

<212> PRT

<213> *Neisseria meningitidis*

<400> 2078

```

Met Met Met Val Leu Ala Leu Gly Ile Ser Ile Pro Val Ser Met Met
  1              5              10              15

Val Glu Gln Ser Asn Thr Leu Asn Arg Cys Cys Lys Lys Ser Arg Met
      20              25              30

Thr Cys Ser Ser Ser Arg Ser Arg Ser Cys Pro Cys Ala Thr Pro Met
      35              40              45

Arg Ala Ser Gly Ser Arg Val Ser Ser Arg Ser Arg Ile Phe Ser Ile
      50              55              60

Val Ser Thr Ser Leu Cys Arg Lys Asn Thr Cys Pro Pro Arg Leu Ser
      65              70              75              80

Ser Arg Asn Thr Ala Ser Arg Thr Leu Pro Ser Leu Lys Gly Leu Thr
      85              90              95

Lys Val Leu Thr Ala Arg Arg Arg Leu Gly Ala Val Val Ile Ser Glu
      100             105             110

Lys Ser Arg Ser Pro Ser Asn Ala Ile Leu Lys Val Arg Gly Ile Gly
      115             120             125

Val Ala Val Met Val Arg Ile Ser Thr Leu Ala Arg Arg Arg Leu Ser
      130             135             140

Cys Ser Phe Arg Thr Pro Lys Arg Cys Ser Ser Ser Ile Ile Thr Lys
      145             150             155             160

Pro Lys Phe Leu Asn Leu Met Ser Ser Cys Thr Ser Leu Cys Val Pro
      165             170             175

Ile Thr Ile Ser Thr Val Pro Ser Ala Met Pro Ser Ser Ala Ala Leu
      180             185             190

Val Ala Leu Leu Leu Lys Arg Glu Arg Leu Ala Thr Phe Thr Gly
      195             200             205

```

Lys Ser Ala Lys Arg Ser Ala Lys Phe Cys Ala Cys Cys Ser Thr Lys  
210 215 220

Ser Val Val Gly Ala Ser Thr Ala Thr Cys Leu Pro Pro Ile Thr Ala  
225 230 235 240

Thr Asn Ala Ala Arg Arg Ala Thr Ser Val Leu Pro Lys Pro Thr Ser  
245 250 255

Pro His Thr Arg Arg Ser Ile Gly Phe Ala Cys Val Lys Ser Leu Ile  
260 265 270

Thr Ala Ala Met Ala Ala Ala Trp Ser Ser Val Ser Ser  
275 280 285

<210> 2079

<211> 861

<212> DNA

<213> Neisseria meningitidis

<400> 2079

atgatgatgg tgttggcggt gggaatgtcg ataccgggtt cgatgatggt ggaacagagc 60  
aacacgttaa atcgttgctg caaaaagtcg cgcattgact gttccagctc gcgctcgcgc 120  
agttgtccgt gcgccacgcc gatgcgggct tcgggcagca gggtttccag ccgctcacgc 180  
atgttttcga tggatatccac ttcattgtgc aggaaaaata cttgcccgcc gcgtttgagt 240  
tcgcgcaata cggttcgcgc cacgctgcct tcgctgaacg gtttgacaaa ggttttgacg 300  
gcgaggcggc ggctgggcgc agtggtaatc agcgagaagt cgcgcagtc ttccagcgcc 360  
atacttaaag tacgcggaat cggcgtagcg gtcattgtaa ggatgtcgac attggcgcgc 420  
aggcgtttga gctgctcttt ctgacgcacg ccgaagcggg gttcttcgtc gataatcact 480  
aaacctacgt ttttgaattt tatgtcgtcc tgcaccagtt tgtgcgtacc gataacaata 540  
tcgaccgtgc cgctccgccat gccttcacgc gcggctttgg tggctttgct gttgttgaaa 600  
cgcgaaaggc tggcgacttt cacggggaaa tcggcgaaag ggtcggcaaa attttgcgcg 660  
tgctgctcga ccagaagcgt ggtcgggtgc agtacggcaa cttgtttgcc acccattacc 720  
gccacaaacg cggcgcgagc ggcgacttcg gttttgccga aaccgacatc gccgcacacg 780  
aggcggcca tcggttcgc ctgcgtcaaa tctttaatca cggcggcgat ggcggctgcc 840  
tggcttcggt tttcttcgta g 861

<210> 2080

<211> 285

<212> PRT

<213> Neisseria meningitidis

<400> 2080

Met Met Met Val Leu Ala Leu Gly Met Ser Ile Pro Val Ser Met Met  
1 5 10 15

Val Glu Gln Ser Asn Thr Leu Asn Arg Cys Cys Lys Lys Ser Arg Met  
20 25 30

Thr Cys Ser Ser Ser Arg Ser Arg Ser Cys Pro Cys Ala Thr Pro Met  
35 40 45

Arg Ala Ser Gly Ser Arg Val Ser Ser Arg Ser Arg Met Phe Ser Met  
50 55 60

Val Ser Thr Ser Leu Cys Arg Lys Asn Thr Cys Pro Pro Arg Leu Ser  
 65 70 75 80  
 Ser Arg Asn Thr Ala Ser Arg Thr Leu Pro Ser Leu Asn Gly Leu Thr  
 85 90 95  
 Lys Val Leu Thr Ala Arg Arg Arg Leu Gly Ala Val Val Ile Ser Glu  
 100 105 110  
 Lys Ser Arg Ser Pro Ser Ser Ala Ile Leu Lys Val Arg Gly Ile Gly  
 115 120 125  
 Val Ala Val Met Val Arg Met Ser Thr Leu Ala Arg Arg Arg Leu Ser  
 130 135 140  
 Cys Ser Phe Arg Thr Pro Lys Arg Cys Ser Ser Ser Ile Ile Thr Lys  
 145 150 155 160  
 Pro Thr Phe Leu Asn Phe Met Ser Ser Cys Thr Ser Leu Cys Val Pro  
 165 170 175  
 Ile Thr Ile Ser Thr Val Pro Ser Ala Met Pro Ser Ser Ala Ala Leu  
 180 185 190  
 Val Ala Leu Leu Leu Leu Lys Arg Glu Arg Leu Ala Thr Phe Thr Gly  
 195 200 205  
 Lys Ser Ala Lys Arg Ser Ala Lys Phe Cys Ala Cys Cys Ser Thr Arg  
 210 215 220  
 Ser Val Val Gly Ala Ser Thr Ala Thr Cys Leu Pro Pro Ile Thr Ala  
 225 230 235 240  
 Thr Asn Ala Ala Arg Arg Ala Thr Ser Val Leu Pro Lys Pro Thr Ser  
 245 250 255  
 Pro His Thr Arg Arg Ser Ile Gly Phe Ala Cys Val Lys Ser Leu Ile  
 260 265 270  
 Thr Ala Ala Met Ala Ala Ala Trp Ser Ser Val Ser Ser  
 275 280 285

<210> 2081

<211> 312

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 2081

atgcaaaggc tcgccgcaga cggcatccaa atcttttttg taggtgtcga tgggcagttt 60  
 gccttgcgaa taaacggttt ggttaaagag cgtgcacgct ccgtattcct tggcaagggt 120  
 tgccgatgct ttgagcaggt aatactgtat ggcttcaaag gtacggtggg tcagaccgag 180  
 cgcggaaccg tcgctgtagc ggacaccgtt tttcgccaga tagtaggcgt agttgatgac 240  
 accgatgccg agcgaacggc ggtccatagt agaggtacgc gcggcttcta ccggatatcc 300  
 ctgataatct aa 312

<210> 2082  
 <211> 103  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 2082  
 Met Gln Arg Leu Ala Ala Asp Gly Ile Gln Ile Phe Phe Val Gly Val  
 1 5 10 15  
 Asp Gly Gln Phe Ala Leu Arg Ile Asn Gly Leu Val Lys Glu Arg Ala  
 20 25 30  
 Arg Ser Val Phe Phe Gly Lys Val Cys Arg Cys Phe Glu Gln Val Ile  
 35 40 45  
 Leu Tyr Gly Phe Lys Gly Thr Val Gly Gln Thr Glu Arg Gly Thr Val  
 50 55 60  
 Ala Val Ala Asp Thr Val Phe Arg Gln Ile Val Gly Val Val Asp Asp  
 65 70 75 80  
 Thr Asp Ala Glu Arg Thr Ala Val His Ser Arg Gly Thr Arg Gly Phe  
 85 90 95  
 Tyr Arg Ile Ser Leu Ile Ile  
 100

<210> 2083  
 <211> 312  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2083  
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 gccttgcgaa taaacgggtt ggttaaagag cgtgcacgca ccgtattctt tggcaagggt 120  
 tgccgatgct ttgagcaggt aatactgtat ggcttcaaag gtacgggtggg tcagaccgag 180  
 cgcggaaccg tcgctgtagc ggacaccgtt tttcgccaga taataagcat agttaatcac 240  
 gccgatgccg agcgaacggc ggcccatagt agagggtacgc gcggcttcta ccggatatcc 300  
 ctgataatct aa 312

<210> 2084  
 <211> 103  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2084  
 Met Gln Arg Leu Ala Ala Asp Gly Ile Gln Ile Phe Phe Val Ser Val  
 1 5 10 15  
 Asp Gly Gln Phe Ala Leu Arg Ile Asn Gly Leu Val Lys Glu Arg Ala  
 20 25 30  
 Arg Thr Val Phe Phe Gly Lys Val Cys Arg Cys Phe Glu Gln Val Ile  
 35 40 45



Leu Tyr Gly Phe Lys Gly Thr Val Gly Gln Thr Glu Arg Gly Thr Val  
50 55 60

Ala Val Ala Asp Thr Val Phe Arg Gln Ile Ile Ser Ile Val Asn His  
65 70 75 80

Ala Asp Ala Glu Arg Thr Ala Ala His Ser Arg Gly Thr Arg Gly Phe  
85 90 95

Tyr Arg Ile Ser Leu Ile Ile  
100

<210> 2085

<211> 312

<212> DNA

<213> Neisseria meningitidis

<400> 2085

gtgcaaaggc tcgttacaca cagcgtccaa gtcttttttg taggtgtcga tgggcagttt 60  
gccttgcgaa taaacgggtt gggttaaagag cgtgcaogca ccgtattctt tggcaagggt 120  
tgccgatgct ttgagcaggt aatactgtat ggcttcaaag gtacgggtggg tcagaccgag 180  
cgcgagagccg tcgctgtagc ggacaccgtt ttgcgcaaaa taatacgcat agttgatcac 240  
gccgataaccg agcgaacggc ggcccatagt ggaggtacgc gcggcttcta ccggatatcc 300  
ctgataatct aa 312

<210> 2086

<211> 103

<212> PRT

<213> Neisseria meningitidis

<400> 2086

Val Gln Arg Leu Val Thr His Ser Val Gln Val Phe Phe Val Gly Val  
1 5 10 15

Asp Gly Gln Phe Ala Leu Arg Ile Asn Gly Leu Val Lys Glu Arg Ala  
20 25 30

Arg Thr Val Phe Phe Gly Lys Val Cys Arg Cys Phe Glu Gln Val Ile  
35 40 45

Leu Tyr Gly Phe Lys Gly Thr Val Gly Gln Thr Glu Arg Gly Ala Val  
50 55 60

Ala Val Ala Asp Thr Val Phe Arg Gln Ile Ile Arg Ile Val Asp His  
65 70 75 80

Ala Asp Thr Glu Arg Thr Ala Ala His Ser Gly Gly Thr Arg Gly Phe  
85 90 95

Tyr Arg Ile Ser Leu Ile Ile  
100

<210> 2087

<211> 636  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 2087  
 atgaacaggc gcaacgcgcg gatcgaacgg gctgtgcgta ttgcagtgat cgacgttttg 60  
 aatgtagatg cgcccgggtcc cggcacgctc ctgcatcagc gtggaaaaca ggtcggcagc 120  
 cggaatgata cgcttgcgta tgttcgggtc ttgctcgtat ttcgtataga gccgctcaaa 180  
 ttcgtcttg tggcaaaaa acgcttcgta caaccccgaa acctcgttg gcgaaaacag 240  
 cgtaatgttg ccgcccttaa tcaggcgggt gtacagcagg cggttgattt gcacgccata 300  
 atcaagctgg cggatacggg tgtcttcac gccccgggtg tttttcaaca ccagcaggct 360  
 ttcggcttca atatgccaca aggggtagaa caagggttgc gcgccgccgc gcacgccacc 420  
 ttgcgaacaa gatttgaccg ccgcctgaaa catcttaaag aagggaatgc agccggtatg 480  
 ccgggcttca ccgccccgga tttcgtctgc cagcccgcgg atacgtccgg cattgatgcc 540  
 gatgccgcg cgttgggaaa cgtatttcac aatcgcgctg gtagtggcat tgatggaatc 600  
 caaactatcg tcgcattcaa tcagcacaca gcttga 636

<210> 2088  
 <211> 211  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 2088  
 Met Asn Arg Arg Asn Ala Arg Ile Glu Arg Ala Val Arg Ile Ala Val  
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 Ile Asp Val Leu Asn Val Asp Ala Pro Gly Pro Gly Thr Leu Leu His  
 20 25 30  
 Gln Arg Gly Lys Gln Val Gly Ser Arg Asn Asp Thr Leu Ala Tyr Val  
 35 40 45  
 Arg Val Leu Leu Val Phe Arg Ile Glu Pro Leu Lys Phe Val Leu Val  
 50 55 60  
 Gly Lys Lys Arg Phe Val Gln Pro Arg Asn Leu Val Gly Arg Lys Gln  
 65 70 75 80  
 Arg Asn Val Ala Ala Leu Asn Gln Ala Gly Val Gln Gln Ala Val Asp  
 85 90 95  
 Leu His Ala Ile Ile Lys Leu Ala Asp Thr Val Val Phe His Ala Pro  
 100 105 110  
 Val Val Phe Gln His Gln Gln Ala Phe Gly Phe Asn Met Pro Gln Gly  
 115 120 125  
 Val Glu Gln Gly Cys Arg Ala Ala Ala His Ala Thr Leu Arg Thr Arg  
 130 135 140  
 Phe Asp Arg Arg Leu Lys His Leu Lys Glu Gly Asn Ala Ala Gly Met  
 145 150 155 160  
 Pro Gly Phe Thr Ala Pro Asp Phe Ala Val Gln Pro Ala Asp Thr Ser  
 165 170 175

Gly Ile Asp Ala Asp Ala Arg Ala Leu Gly Asn Val Phe His Asn Arg  
180 185 190

Ala Gly Ser Gly Ile Asp Gly Ile Gln Thr Ile Val Ala Phe Asn Gln  
195 200 205

His Thr Ala  
210

<210> 2089

<211> 636

<212> DNA

<213> Neisseria meningitidis

<400> 2089

atgaacaggc gcgacgcgcg gatcgaacgg gctgtgcgta ttgcagtgat cgacgttttg 60  
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cggaatgatg cgcttgcgga tatcagggtc ttgctcgtat ttcgatataga gccgctcaaa 180  
ttcgtcttgg tcggcaaaaa acgcttcgta caatcccgga acctcgttgg gcgaaaacag 240  
cgtaaatgttg ccgcccttaa tcaggcgggt gtacagcagg cggttgattt gcacgccgta 300  
atcaagctga cggatacggg tgtcttccac accgcggttg tttttcaaca ccagcaggct 360  
ttcggcttcg atatgccaca aggggtagaa caagggttgcc gcgccgccgc gcacgccgcc 420  
ttgcgaacag gatttgaccg ccgcctgaaa cattttaaag aagggaatgc agccgggatg 480  
ccgcgcttcg ccgccccgga ttctcgtgtc caaacccggg atacgtccgg cattgatgcc 540  
gatgcccgca cgctgggaaa cgtatttcac aatcgcgctg gtagtggcat tgatggaatc 600  
caaactatcg tcgcattcaa tcagcacaca gcttga 636

<210> 2090

<211> 211

<212> PRT

<213> Neisseria meningitidis

<400> 2090

Met Asn Arg Arg Asp Ala Arg Ile Glu Arg Ala Val Arg Ile Ala Val  
1 5 10 15

Ile Asp Val Leu Asn Val Asp Ala Pro Gly Ser Gly Thr Leu Leu His  
20 25 30

Gln Arg Gly Lys Gln Val Gly Ser Arg Asn Asp Ala Leu Ala Asp Ile  
35 40 45

Arg Val Leu Leu Val Phe Arg Ile Glu Pro Leu Lys Phe Val Leu Val  
50 55 60

Gly Lys Lys Arg Phe Val Gln Ser Arg Asn Leu Val Gly Arg Lys Gln  
65 70 75 80

Arg Asn Val Ala Ala Leu Asn Gln Ala Gly Val Gln Gln Ala Val Asp  
85 90 95

Leu His Ala Val Ile Lys Leu Thr Asp Thr Val Val Phe His Thr Ala  
100 105 110

Val Val Phe Gln His Gln Gln Ala Phe Gly Phe Asp Met Pro Gln Gly

115	120	125
Val Glu Gln Gly Cys Arg Ala Ala Ala His Ala Ala Leu Arg Thr Gly		
130	135	140
Phe Asp Arg Arg Leu Lys His Phe Lys Glu Gly Asn Ala Ala Gly Met		
145	150	155
Pro Arg Phe Ala Ala Pro Asp Phe Ala Val Gln Thr Ala Asp Thr Ser		
	165	170
Gly Ile Asp Ala Asp Ala Arg Thr Leu Gly Asn Val Phe His Asn Arg		
	180	185
Ala Gly Ser Gly Ile Asp Gly Ile Gln Thr Ile Val Ala Phe Asn Gln		
195	200	205
His Thr Ala		
210		

<210> 2091  
 <211> 636  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2091  
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 aatgtagatg cgcccgggtc cggcacgctc ctgcatcagc gtggaaaaca ggtcggcagc 120  
 cggaaatgatg cgcttgccga taccagggtc ttgctcgat ttcgatataga gccgctcaaa 180  
 ttcgctcttg tcggcaaaaa acgcttcgta caatcccga acccggttg gcgaaaacag 240  
 cgtaaatgttg ccgcccttaa tcaggcgggt gtacagcagg cggttgattt gcacgccgta 300  
 atcaagctga cggatacggg tgtcttcac gccccgggtt ttttcaaca ccagcaggct 360  
 ttcggtctcg atatgccaca agggtagaa caaggttgcc gcgccgccgc gcacgccacc 420  
 ttgcgaacag gatttgactg ccgcctgaaa cattttaaag aagggaatgc agccggtatg 480  
 ccgtgcttcg ccgccccgga ttctgctgtc cagtccgcgg atacgtccgg cattgatgcc 540  
 gatgcccgca cgctgggaaa cgtatttcac aatcgcgctg gtagtggcgt tgatggaatc 600  
 caggctgtcg tcgcattcga tcaatacgca gcttga 636

<210> 2092  
 <211> 211  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2092  
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 1 5 10 15  
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 20 25 30  
 Gln Arg Gly Lys Gln Val Gly Ser Arg Asn Asp Ala Leu Ala Asp Ile  
 35 40 45  
 Arg Val Leu Leu Val Phe Arg Ile Glu Pro Leu Lys Phe Val Leu Val  
 50 55 60

Gly Lys Lys Arg Phe Val Gln Ser Arg Asn Leu Val Gly Arg Lys Gln  
 65 70 75 80  
 Arg Asn Val Ala Ala Leu Asn Gln Ala Gly Val Gln Gln Ala Val Asp  
 85 90 95  
 Leu His Ala Val Ile Lys Leu Thr Asp Thr Val Val Phe His Ala Pro  
 100 105 110  
 Val Val Phe Gln His Gln Gln Ala Phe Gly Phe Asp Met Pro Gln Gly  
 115 120 125  
 Val Glu Gln Gly Cys Arg Ala Ala Ala His Ala Thr Leu Arg Thr Gly  
 130 135 140  
 Phe Asp Cys Arg Leu Lys His Phe Lys Glu Gly Asn Ala Ala Gly Met  
 145 150 155 160  
 Pro Cys Phe Ala Ala Pro Asp Phe Ala Val Gln Ser Ala Asp Thr Ser  
 165 170 175  
 Gly Ile Asp Ala Asp Ala Arg Thr Leu Gly Asn Val Phe His Asn Arg  
 180 185 190  
 Ala Gly Ser Gly Val Asp Gly Ile Gln Ala Val Val Ala Phe Asp Gln  
 195 200 205  
 Tyr Ala Ala  
 210

<210> 2093  
 <211> 312  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 2093  
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 acgtcagaac cgcgccaccg acataccaaa catatcagca aggcaaaca gcagatgctg 120  
 caccgccgaat gcaggaaata tttggaacgc cgtgccgcgt ggtaccgata gcaaggcaac 180  
 gtgcaggaat tgcgcgaaaa caaaaaggcg cgcaaagcat tccgcaccct gccttatgcg 240  
 gaacagaaaa tccaatgccg ggcggcttat gaggctttcg atgatttcga cggcggcagg 300  
 ttccgccggt aa 312

<210> 2094  
 <211> 103  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 2094  
 Met Leu Ala Ile Leu Leu Ser Ala Ile Leu Gly Leu Val Ser Thr Thr  
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 Ala Ala Ala Gly Thr Ser Glu Pro Ala His Arg His Thr Lys His Ile  
 20 25 30

Ser Lys Ala Asn Lys Gln Met Leu His Pro Glu Cys Arg Lys Tyr Leu  
35 40 45

Glu Arg Arg Ala Ala Trp Tyr Arg Ser Gln Gly Asn Val Gln Glu Leu  
50 55 60

Arg Glu Asn Lys Lys Ala Arg Lys Ala Phe Arg Thr Leu Pro Tyr Ala  
65 70 75 80

Glu Gln Lys Ile Gln Cys Arg Ala Ala Tyr Glu Ala Phe Asp Asp Phe  
85 90 95

Asp Gly Gly Arg Phe Arg Arg  
100

<210> 2095  
<211> 312  
<212> DNA  
<213> Neisseria meningitidis

<400> 2095  
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acgtcagaac ccgcccaccg cgataccaaa catatccgca aggcaaaca gcagatgctg 120  
caccgccgaat gcaggaaata ttggaacgc cgtgccgcgt ggtaccgatc gcaaggcaac 180  
gtgcaggaat tgcgcgaaaa caaaaaggcg cgcaaagcat tccgctccct gccttatgcg 240  
gaacagaaaa tccaatgccg ggcggccttat gaggctttcg atgatttcga cggcggcagt 300  
ttccgccgtt aa 312

<210> 2096  
<211> 103  
<212> PRT  
<213> Neisseria meningitidis

<400> 2096  
Met Leu Ala Ile Leu Leu Ser Ala Ile Leu Gly Leu Val Ser Thr Thr  
1 5 10 15

Ala Ala Ala Gly Thr Ser Glu Pro Ala His Arg Asp Thr Lys His Ile  
20 25 30

Arg Lys Ala Asn Lys Gln Met Leu His Pro Glu Cys Arg Lys Tyr Leu  
35 40 45

Glu Arg Arg Ala Ala Trp Tyr Arg Ser Gln Gly Asn Val Gln Glu Leu  
50 55 60

Arg Glu Asn Lys Lys Ala Arg Lys Ala Phe Arg Ser Leu Pro Tyr Ala  
65 70 75 80

Glu Gln Lys Ile Gln Cys Arg Ala Ala Tyr Glu Ala Phe Asp Asp Phe  
85 90 95

Asp Gly Gly Ser Phe Arg Arg  
100

<210> 2097  
<211> 312  
<212> DNA  
<213> *Neisseria meningitidis*

<400> 2097  
atgcttgcca tactgttggtc tgcaatattg ggactgggtat cgacaactgc cgctgccggt 60  
acgtcagaac ccgcccaccg cgataccaaa catatccgca aggcaaacaa gcagatgctg 120  
caccgccaat gcaggaaata tttggaacgc cgtgccgcgt ggtaccgatc gcaaggcaac 180  
gtgcaggaaat tgcgcgaaaa caaaaaggcg cgcaaagcat tccgctccct gccttataag 240  
gaacagaaaa cccaatgccg ggcggccttat gaggctttcg atgatttcga cggcagcagg 300  
ttccgccgtt aa 312

<210> 2098  
<211> 103  
<212> PRT  
<213> *Neisseria meningitidis*

<400> 2098  
Met Leu Ala Ile Leu Leu Ser Ala Ile Leu Gly Leu Val Ser Thr Thr  
1 5 10 15  
Ala Ala Ala Gly Thr Ser Glu Pro Ala His Arg Asp Thr Lys His Ile  
20 25 30  
Arg Lys Ala Asn Lys Gln Met Leu His Pro Glu Cys Arg Lys Tyr Leu  
35 40 45  
Glu Arg Arg Ala Ala Trp Tyr Arg Ser Gln Gly Asn Val Gln Glu Leu  
50 55 60  
Arg Glu Asn Lys Lys Ala Arg Lys Ala Phe Arg Ser Leu Pro Tyr Lys  
65 70 75 80  
Glu Gln Lys Thr Gln Cys Arg Ala Ala Tyr Glu Ala Phe Asp Asp Phe  
85 90 95  
Asp Gly Ser Arg Phe Arg Arg  
100

<210> 2099  
<211> 1398  
<212> DNA  
<213> *Neisseria gonorrhoeae*

<400> 2099  
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ctatatgccc aaaacacctc atcacaccaa gtcggtttag cgattatgcg gttaaactct 120  
tcaatactcg acctgccacc gacaaaacaa tatttccaat ccggcagcct gtgggacgag 180  
ctgcgccaag gcttcggat gggcgaagtc aatcccgaac tggtagccg ccacgaaagc 240  
aaattcatcg caagccgcag ctatttcgac agggtcgtca accggagccg accctatatg 300  
taccatatcg ccaacgaagt caaaaaacgc aatatgcccg ccgaagccgc cctgcttccc 360  
ttcatcgaag gcgcgttcgt caccaaagcc aaatcacacg tcggcgcgcatc gggcctgtgg 420

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cagttcatgc ccgctaccgg caggcattac ggcttggaaa aaacaccggt ttacgacggc 480
aggcacgacg tttacgcagc taccgatgcc gcactcaact atctgcaata tctctatgga 540
ctgttcggcg actggccgct cgcctttgcc gcctacaact ggggtgaagg caacgtcggg 600
cgcgccgtca accgcgcccg cgaccaaggg ctggaaccga cctacgaaaa cctgcgtatg 660
cccaacgaaa cgcgcaacta tgtccccaag ctgctcgccg tgcgcaacat tattgccacc 720
ccccaatctt tcggcatgaa tatcagcgac atagacaaca aaccctatct tcaggcagtc 780
gaaccggggc gtccgctcga caacgaagcc atcgcccggc ttgcccggcat cagcgaagc 840
gagctgctcg ccctgaatcc tgcattcaac gtccccgctg tcatcccca aaacaaacgc 900
aaactgctgc ttctgtgcgc gtccgtccaa accttccaaa gcaactacct caacgccgca 960
cccacagacc tgttttcatg ggaagtctat acgcctgccc ccaaaaccag cctgtccgac 1020
atctcgacgg caaccggcat gagcattgcc gacatcaaac gcctcaaaa cctgaacggc 1080
aaccttgtca acgcaggacg cagcatcctt gtcgccaaga acggcaagac ccttcatacg 1140
gcatcggaat ccgtcggttt catcgacatc gacaatacgc ccgacaccta ccgttccaat 1200
atgccggcag gcacgggtgaa cgtcagcatt gcccgaatcc aaccggccgc cgcacagaca 1260
gcggacatta ccgtcgacac ttgtccgcaa gaaaccgtcc gtacgggaac ccgatccctt 1320
tgtccgcat accgaaccgg cccttgcgac agccgcagcg caacctcaaa ccgaaaaaca 1380
gactgccatg ccgtctga                                     1398

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<210> 2100

<211> 465

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2100

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Met Ser Lys Leu Lys Thr Ile Ala Leu Thr Ala Ser Gly Leu Ser Val
  1             5             10            15

```

```

Cys Pro Gly Phe Leu Tyr Ala Gln Asn Thr Ser Ser His Gln Val Gly
      20             25             30

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```

Leu Ala Ile Met Arg Leu Asn Ser Ser Ile Leu Asp Leu Pro Pro Thr
    35             40             45

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```

Lys Gln Tyr Phe Gln Ser Gly Ser Leu Trp Asp Glu Leu Arg Gln Gly
    50             55             60

```

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Phe Arg Met Gly Glu Val Asn Pro Glu Leu Val Arg Arg His Glu Ser
    65             70             75            80

```

```

Lys Phe Ile Ala Ser Arg Ser Tyr Phe Asp Arg Val Val Asn Arg Ser
      85             90             95

```

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Arg Pro Tyr Met Tyr His Ile Ala Asn Glu Val Lys Lys Arg Asn Met
    100            105            110

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Pro Ala Glu Ala Ala Leu Leu Pro Phe Ile Glu Ser Ala Phe Val Thr
    115            120            125

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Lys Ala Lys Ser His Val Gly Ala Ser Gly Leu Trp Gln Phe Met Pro
    130            135            140

```

```

Ala Thr Gly Arg His Tyr Gly Leu Glu Lys Thr Pro Val Tyr Asp Gly
    145            150            155            160

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Arg His Asp Val Tyr Ala Ala Thr Asp Ala Ala Leu Asn Tyr Leu Gln

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165										170					175						
Tyr	Leu	Tyr	Gly	Leu	Phe	Gly	Asp	Trp	Pro	Leu	Ala	Phe	Ala	Ala	Tyr						
			180					185					190								
Asn	Trp	Gly	Glu	Gly	Asn	Val	Gly	Arg	Ala	Val	Asn	Arg	Ala	Arg	Asp						
		195					200					205									
Gln	Gly	Leu	Glu	Pro	Thr	Tyr	Glu	Asn	Leu	Arg	Met	Pro	Asn	Glu	Thr						
	210					215					220										
Arg	Asn	Tyr	Val	Pro	Lys	Leu	Leu	Ala	Val	Arg	Asn	Ile	Ile	Ala	Thr						
225					230					235					240						
Pro	Gln	Ser	Phe	Gly	Met	Asn	Ile	Ser	Asp	Ile	Asp	Asn	Lys	Pro	Tyr						
				245					250					255							
Phe	Gln	Ala	Val	Glu	Pro	Gly	Arg	Pro	Leu	Asp	Asn	Glu	Ala	Ile	Ala						
			260					265					270								
Arg	Leu	Ala	Gly	Ile	Thr	Gln	Ser	Glu	Leu	Leu	Ala	Leu	Asn	Pro	Ala						
	275					280						285									
Phe	Asn	Val	Pro	Ala	Phe	Ile	Pro	Lys	Asn	Lys	Arg	Lys	Leu	Leu	Leu						
	290					295					300										
Pro	Val	Ala	Ser	Val	Gln	Thr	Phe	Gln	Ser	Asn	Tyr	Leu	Asn	Ala	Ala						
305					310					315					320						
Pro	Asp	Ser	Leu	Phe	Ser	Trp	Glu	Val	Tyr	Thr	Pro	Ala	Ala	Lys	Thr						
				325					330					335							
Ser	Leu	Ser	Asp	Ile	Ser	Thr	Ala	Thr	Gly	Met	Ser	Ile	Ala	Asp	Ile						
			340					345					350								
Lys	Arg	Leu	Asn	Asn	Leu	Asn	Gly	Asn	Leu	Val	Asn	Ala	Gly	Arg	Ser						
		355					360					365									
Ile	Leu	Val	Ala	Lys	Asn	Gly	Lys	Thr	Leu	His	Thr	Ala	Ser	Glu	Ser						
	370					375					380										
Val	Val	Ser	Ile	Asp	Ile	Asp	Asn	Thr	Pro	Asp	Thr	Tyr	Arg	Ser	Asn						
385					390					395					400						
Met	Pro	Ala	Gly	Thr	Val	Asn	Val	Ser	Ile	Ala	Arg	Ile	Gln	Pro	Ala						
				405					410					415							
Ala	Ala	Gln	Thr	Ala	Asp	Ile	Thr	Val	Ala	Pro	Leu	Pro	Gln	Glu	Thr						
			420					425					430								
Val	Arg	Thr	Gly	Thr	Arg	Ser	Pro	Cys	Pro	His	Tyr	Arg	Thr	Arg	Pro						
		435					440					445									
Cys	Asp	Ser	Arg	Ser	Ala	Thr	Ser	Asn	Arg	Lys	Thr	Asp	Cys	His	Ala						
	450					455					460										

Val

<210> 2101  
 <211> 1397  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2101  
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 ctatacgccc aaaacacctc atcacaccaa atcgggtttg cgattatgcg cttaaactct 120  
 tcaatactcg acctgcccc gacaaaacaa tatttccaat ccggcagcct gtggggcgag 180  
 ctgcgccaag gcttccggat gggcgaagtc aatcccgaac tggtagcccg ccacgaaagc 240  
 aaattcatcg caagccacag ctatttcaac agggatcatc accggagtag accctatatg 300  
 taccatatcg ccaacgaagt caaaaaacgc aatatgcccg ccgaagccgc cctgcttccc 360  
 ttcacgaaa gcgcgttcgt caccaaagcc aatcacacg tcggcgcatc aggattatgg 420  
 cagtttatgc ccgctaccgg caggcattac ggcctggaaa aaacaccggg ttacgacggc 480  
 aggcacgacg tttacgcgcg caccgatgcc gcactcaact atctgcaata cctctatgga 540  
 ctgttcggcg actggccgct tgcctttgcc gcctacaact ggggtgaagg caacgtcgga 600  
 cgcgccatca accgcgcccg cgcccaaggg ctggaaccga cctacgaaaa cctgcgtatg 660  
 cccaacgaaa cgcgcaacta tgtccccaag ctgctcgccg tgcgcaacat tattgccact 720  
 cccaatctt tcggcatgaa tatcagcgac atagacaaca aacctatatt tcaggcagtc 780  
 gaaccggatc gtccgctcga caacgaagcc atcgcccggc ttgcccggcat cagcgaagc 840  
 gagctgctcg ccctaaaccc cgcattcaac gtccccgcgt ttatcccaa aagcaaagc 900  
 aaactgctgc ttctgtcgc gtccgtacaa accttccaaa gcaactacct caacgcgcga 960  
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 atctcgacgg caaccggcat gagcattgcc gacatcaaac gcctcaacaa cctgaacggc 1080  
 aaccttgtca acgcaggacg cagcatcctt gtcgccaaaga acggcaaaac ccttcagacg 1140  
 gcatcggaat ccgctcgtttc catcgacatc gacaatacgc ccgacaccta ccgttccaat 1200  
 atgccggcag gcacggtgaa cgtcggcatt gcccgaaatcc gacccgccgc cgcacagaca 1260  
 gcggacatta ccgctgcacc tttgccgcag aaaaccgtcc gtacggaacc cgatcccctt 1320  
 gtccgtattg ccgaacctgc ccttgcgaca gccgcagcgc aacctcaaac cgaaaaacag 1380  
 accgcatgc cgtctga 1397

<210> 2102  
 <211> 465  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2102  
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 Cys Pro Gly Phe Leu Tyr Ala Gln Asn Thr Ser Ser His Gln Ile Gly  
 20 25 30  
 Leu Ala Ile Met Arg Leu Asn Ser Ser Ile Leu Asp Leu Pro Pro Thr  
 35 40 45  
 Lys Gln Tyr Phe Gln Ser Gly Ser Leu Trp Gly Glu Leu Arg Gln Gly  
 50 55 60  
 Phe Arg Met Gly Glu Val Asn Pro Glu Leu Val Arg Arg His Glu Ser  
 65 70 75 80  
 Lys Phe Ile Ala Ser His Ser Tyr Phe Asn Arg Val Ile Asn Arg Ser

85										90					95				
Arg	Pro	Tyr	Met	Tyr	His	Ile	Ala	Asn	Glu	Val	Lys	Lys	Arg	Asn	Met				
			100				105						110						
Pro	Ala	Glu	Ala	Ala	Leu	Leu	Pro	Phe	Ile	Glu	Ser	Ala	Phe	Val	Thr				
		115				120						125							
Lys	Ala	Lys	Ser	His	Val	Gly	Ala	Ser	Gly	Leu	Trp	Gln	Phe	Met	Pro				
		130				135						140							
Ala	Thr	Gly	Arg	His	Tyr	Gly	Leu	Glu	Lys	Thr	Pro	Val	Tyr	Asp	Gly				
		145				150						155			160				
Arg	His	Asp	Val	Tyr	Ala	Ala	Thr	Asp	Ala	Ala	Leu	Asn	Tyr	Leu	Gln				
					165				170					175					
Tyr	Leu	Tyr	Gly	Leu	Phe	Gly	Asp	Trp	Pro	Leu	Ala	Phe	Ala	Ala	Tyr				
				180				185					190						
Asn	Trp	Gly	Glu	Gly	Asn	Val	Gly	Arg	Ala	Ile	Asn	Arg	Ala	Arg	Ala				
		195				200						205							
Gln	Gly	Leu	Glu	Pro	Thr	Tyr	Glu	Asn	Leu	Arg	Met	Pro	Asn	Glu	Thr				
		210				215						220							
Arg	Asn	Tyr	Val	Pro	Lys	Leu	Leu	Ala	Val	Arg	Asn	Ile	Ile	Ala	Thr				
				230					235					240					
Pro	Gln	Ser	Phe	Gly	Met	Asn	Ile	Ser	Asp	Ile	Asp	Asn	Lys	Pro	Tyr				
					245				250					255					
Phe	Gln	Ala	Val	Glu	Pro	Asp	Arg	Pro	Leu	Asp	Asn	Glu	Ala	Ile	Ala				
					260		265						270						
Arg	Leu	Ala	Gly	Ile	Thr	Gln	Ser	Glu	Leu	Leu	Ala	Leu	Asn	Pro	Ala				
				275		280						285							
Phe	Asn	Val	Pro	Ala	Phe	Ile	Pro	Lys	Ser	Lys	Arg	Lys	Leu	Leu	Leu				
		290					295		300										
Pro	Val	Ala	Ser	Val	Gln	Thr	Phe	Gln	Ser	Asn	Tyr	Leu	Asn	Ala	Ala				
				310						315					320				
Pro	Asp	Ser	Leu	Phe	Ser	Trp	Glu	Val	Tyr	Thr	Pro	Ala	Ala	Lys	Thr				
					325					330					335				
Ser	Leu	Ser	Asp	Ile	Ser	Thr	Ala	Thr	Gly	Met	Ser	Ile	Ala	Asp	Ile				
					340		345						350						
Lys	Arg	Leu	Asn	Asn	Leu	Asn	Gly	Asn	Leu	Val	Asn	Ala	Gly	Arg	Ser				
		355					360					365							
Ile	Leu	Val	Ala	Lys	Asn	Gly	Lys	Thr	Leu	Gln	Thr	Ala	Ser	Glu	Ser				
		370					375					380							
Val	Val	Ser	Ile	Asp	Ile	Asp	Asn	Thr	Pro	Asp	Thr	Tyr	Arg	Ser	Asn				

385	390	395	400
Met Pro Ala Gly Thr Val Asn Val Gly Ile Ala Arg Ile Arg Pro Ala			
	405	410	415
Ala Ala Gln Thr Ala Asp Ile Thr Val Ala Pro Leu Pro Gln Lys Thr			
	420	425	430
Val Arg Thr Xaa Thr Arg Ser Pro Cys Pro Tyr Cys Arg Thr Cys Pro			
	435	440	445
Cys Asp Ser Arg Ser Ala Thr Ser Asn Arg Lys Thr Asp Arg His Ala			
	450	455	460

Val  
465

<210> 2103  
 <211> 1397  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2103  
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 tcaatactcg acctgccacc gacaaaacaa tatttccaat ccggcagcct gtggagcgag 180  
 ctgcgccaag gcttccggat gggcgaagtc aatcccgaaac tggtagcccg ccacgaaagc 240  
 aaattcatcg caagccacag ctatttcaac agggtcacat accggagtag accctatatg 300  
 taccatatcg ccaacgaagt caaaaaacgc aatatgcccg ccgaagccgc cctgcttccc 360  
 ttcatcgaaa gcgcgttcgt caccaaagcc aaatcacacg tcggcgcacg gggcctgtgg 420  
 cagttcatgc ccgctaccgg caggcattac ggcttgaaa aaacaccggg ttacgacggc 480  
 aggcacgaca tttacgccgc caccgatgcc gcactcaact atctgcaata cctctatgga 540  
 ctgttcggcg actggccgct cgccctttgcc gcctacaact ggggtgaagg caacgtcggg 600  
 cgcgccatca accgcgcccg cgcccaaggg ctggaaccga cctacgaaaa cctgcgtatg 660  
 cccaacgaaa cgcgcaacta tgttcccaag ctgctgcgcg tgcgcaacat cattgccgcc 720  
 ccccaatctt tcggcatgaa tatcagcgac atagacaaca aaccgtatct tcaggcagtc 780  
 gaaccggacc gtccgctcga caacgaagcc atcgcccggc ttgccggcat cagcaaagc 840  
 gagctgctcg ccctaaaccc cgcattcaac gtcccgcggt tcatcccaa aagcaaagc 900  
 aaactgctgc ttctgtcgc gtccgtacaa accttccaaa gcaactacct caacgccgca 960  
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 atctcgacgg caaccggcat gagcattgcc gacatcaaac gcctcaacaa cctgaacggc 1080  
 aaccttgtca acgcaggacg cagcatcctt gtcgccaaga acggcaaaac ccttcagacg 1140  
 gcatcggaat ccgtcgtttc catcgacatc gacaatacgc ccaacaccta ccgttccaat 1200  
 atgccggcag gcacggtgaa cgtcggcatt gcccgaaatc gaccgcgcgc cgcacagaca 1260  
 gcggacatta ccgtcgcacc tttgccgcag aaaaccgtcc gtacggaacc cgatcccctt 1320  
 gtccgtattg ccgaacctgc ccttgcgaca gccgcagcgc aacctcaaac cgaaaaacag 1380  
 accgccatgc cgtctga 1397

<210> 2104  
 <211> 465  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2104  
 Met Ser Lys Leu Lys Thr Ile Ala Leu Thr Ala Ser Gly Leu Ser Val

1	5	10	15
Cys Pro Gly Phe Leu Tyr Ala Gln Asn Thr Ser Ser His Gln Ile Gly	20	25	30
Leu Ala Ile Met Arg Leu Asn Ser Ser Ile Leu Asp Leu Pro Pro Thr	35	40	45
Lys Gln Tyr Phe Gln Ser Gly Ser Leu Trp Ser Glu Leu Arg Gln Gly	50	55	60
Phe Arg Met Gly Glu Val Asn Pro Glu Leu Val Arg Arg His Glu Ser	65	70	75
Lys Phe Ile Ala Ser His Ser Tyr Phe Asn Arg Val Ile Asn Arg Ser	85	90	95
Arg Pro Tyr Met Tyr His Ile Ala Asn Glu Val Lys Lys Arg Asn Met	100	105	110
Pro Ala Glu Ala Ala Leu Leu Pro Phe Ile Glu Ser Ala Phe Val Thr	115	120	125
Lys Ala Lys Ser His Val Gly Ala Ser Gly Leu Trp Gln Phe Met Pro	130	135	140
Ala Thr Gly Arg His Tyr Gly Leu Glu Lys Thr Pro Val Tyr Asp Gly	145	150	155
Arg His Asp Ile Tyr Ala Ala Thr Asp Ala Ala Leu Asn Tyr Leu Gln	165	170	175
Tyr Leu Tyr Gly Leu Phe Gly Asp Trp Pro Leu Ala Phe Ala Ala Tyr	180	185	190
Asn Trp Gly Glu Gly Asn Val Gly Arg Ala Ile Asn Arg Ala Arg Ala	195	200	205
Gln Gly Leu Glu Pro Thr Tyr Glu Asn Leu Arg Met Pro Asn Glu Thr	210	215	220
Arg Asn Tyr Val Pro Lys Leu Leu Ala Val Arg Asn Ile Ile Ala Ala	225	230	235
Pro Gln Ser Phe Gly Met Asn Ile Ser Asp Ile Asp Asn Lys Pro Tyr	245	250	255
Phe Gln Ala Val Glu Pro Asp Arg Pro Leu Asp Asn Glu Ala Ile Ala	260	265	270
Arg Leu Ala Gly Ile Thr Gln Ser Glu Leu Leu Ala Leu Asn Pro Ala	275	280	285
Phe Asn Val Pro Ala Phe Ile Pro Lys Ser Lys Arg Lys Leu Leu Leu	290	295	300
Pro Val Ala Ser Val Gln Thr Phe Gln Ser Asn Tyr Leu Asn Ala Ala			

305                      310                      315                      320  
 Pro Asp Ser Leu Phe Ser Trp Glu Val Tyr Thr Pro Ala Ala Lys Thr  
                                  325                                   330                                   335  
 Ser Leu Ser Asp Ile Ser Thr Ala Thr Gly Met Ser Ile Ala Asp Ile  
                                  340                                   345                                   350  
 Lys Arg Leu Asn Asn Leu Asn Gly Asn Leu Val Asn Ala Gly Arg Ser  
                                  355                                   360                                   365  
 Ile Leu Val Ala Lys Asn Gly Lys Thr Leu Gln Thr Ala Ser Glu Ser  
                                  370                                   375                                   380  
 Val Val Ser Ile Asp Ile Asp Asn Thr Pro Asn Thr Tyr Arg Ser Asn  
                                  385                                   390                                   395                                   400  
 Met Pro Ala Gly Thr Val Asn Val Gly Ile Ala Arg Ile Arg Pro Ala  
                                  405                                   410                                   415  
 Ala Ala Gln Thr Ala Asp Ile Thr Val Ala Pro Leu Pro Gln Lys Thr  
                                  420                                   425                                   430  
 Val Arg Thr Xaa Thr Arg Ser Pro Cys Pro Tyr Cys Arg Thr Cys Pro  
                                  435                                   440                                   445  
 Cys Asp Ser Arg Ser Ala Thr Ser Asn Arg Lys Thr Asp Arg His Ala  
                                  450                                   455                                   460  
 Val  
 465

<210> 2105  
 <211> 1008  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 2105  
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 ttggggggcg caggtccgat gtccctgccc gtaccgatga tgaacgtcat caacggcgcg 180  
 gaacacgcca acaacagcct gaacatccaa gagtttatga ttatgcccggt cggcgcaaaa 240  
 tctttccgcg aagcgttgcg ctgcggtgcg gaaattttcc acgccttgaa aaaactgtgc 300  
 gacagtaaaag gtttcccgac cacagtcggc gacgaaggcg gtttcgcccc caacctgaac 360  
 agccacaaaag aagccctgca actgatggtc gaagcgcccg aagccgcccg ctacaaggcg 420  
 ggcgaagacg tattattcgc attggactgc gcgtccagcg agttctacaa agacggcaaa 480  
 taccatttgg aagccgaagg ccgctcctac accaacgcgg aatttgccga atacttgga 540  
 ggcttggtta acgaattccc gattatttcc attgaagacg ggatggacga aaacgactgg 600  
 gaaggctgga aactgctgac cgaaaaattg ggcaaaaaag ttcaattggt cggcgacgac 660  
 ttgttcgtaa ccaatccgaa aattcttgcc gaaggcatcg aaaaaggcgt agcaaacgca 720  
 ttgctggtca aagtcaacca aatcggtact ttaagcgaaa ccctgaaagc cgtcgatctg 780  
 gcaaaatgca accgctacgc cagcgtgatg agccaccgct ccggcgaaac cgaagacagt 840  
 accattgccc acttggcagt cgccaccaac tgtatgcaga ttaaaaccgg ttctttgagc 900  
 cgttccgacc gcatggcgaa atacaaccaa ctgctgcgta tcgaggaaga attggcgga 960  
 gccgcctact accccggcaa agccgcattc taccaactgg gcaataaa 1008

<210> 2106

<211> 335

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 2106

Met	Ile	Glu	Leu	Asp	Gly	Thr	Glu	Asn	Lys	Gly	Asn	Leu	Gly	Ala	Asn	
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Ala	Thr	Leu	Ala	Val	Ser	Met	Ala	Val	Ala	Arg	Ala	Ala	Ala	Glu	Asp	
			20					25					30			
Ser	Gly	Leu	Pro	Leu	Tyr	Arg	Tyr	Leu	Gly	Gly	Ala	Gly	Pro	Met	Ser	
		35					40					45				
Leu	Pro	Val	Pro	Met	Met	Asn	Val	Ile	Asn	Gly	Gly	Glu	His	Ala	Asn	
	50					55					60					
Asn	Ser	Leu	Asn	Ile	Gln	Glu	Phe	Met	Ile	Met	Pro	Val	Gly	Ala	Lys	
65					70					75					80	
Ser	Phe	Arg	Glu	Ala	Leu	Arg	Cys	Gly	Ala	Glu	Ile	Phe	His	Ala	Leu	
				85					90						95	
Lys	Lys	Leu	Cys	Asp	Ser	Lys	Gly	Phe	Pro	Thr	Thr	Val	Gly	Asp	Glu	
		100						105					110			
Gly	Gly	Phe	Ala	Pro	Asn	Leu	Asn	Ser	His	Lys	Glu	Ala	Leu	Gln	Leu	
		115					120						125			
Met	Val	Glu	Ala	Ala	Glu	Ala	Ala	Gly	Tyr	Lys	Ala	Gly	Glu	Asp	Val	
	130						135					140				
Leu	Phe	Ala	Leu	Asp	Cys	Ala	Ser	Ser	Glu	Phe	Tyr	Lys	Asp	Gly	Lys	
145					150					155					160	
Tyr	His	Leu	Glu	Ala	Glu	Gly	Arg	Ser	Tyr	Thr	Asn	Ala	Glu	Phe	Ala	
				165					170					175		
Glu	Tyr	Leu	Glu	Gly	Leu	Val	Asn	Glu	Phe	Pro	Ile	Ile	Ser	Ile	Glu	
		180						185					190			
Asp	Gly	Met	Asp	Glu	Asn	Asp	Trp	Glu	Gly	Trp	Lys	Leu	Leu	Thr	Glu	
	195						200					205				
Lys	Leu	Gly	Lys	Lys	Val	Gln	Leu	Val	Gly	Asp	Asp	Leu	Phe	Val	Thr	
	210					215					220					
Asn	Pro	Lys	Ile	Leu	Ala	Glu	Gly	Ile	Glu	Lys	Gly	Val	Ala	Asn	Ala	
225					230					235					240	
Leu	Leu	Val	Lys	Val	Asn	Gln	Ile	Gly	Thr	Leu	Ser	Glu	Thr	Leu	Lys	
			245						250					255		
Ala	Val	Asp	Leu	Ala	Lys	Cys	Asn	Arg	Tyr	Ala	Ser	Val	Met	Ser	His	

260 265 270  
 Arg Ser Gly Glu Thr Glu Asp Ser Thr Ile Ala Asp Leu Ala Val Ala  
 275 280 285  
 Thr Asn Cys Met Gln Ile Lys Thr Gly Ser Leu Ser Arg Ser Asp Arg  
 290 295 300  
 Met Ala Lys Tyr Asn Gln Leu Leu Arg Ile Glu Glu Glu Leu Ala Glu  
 305 310 315 320  
 Ala Ala Tyr Tyr Pro Gly Lys Ala Ala Phe Tyr Gln Leu Gly Lys  
 325 330 335

<210> 2107  
 <211> 1008  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2107  
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 ttgggcgcg caggcccgat gtccctgccc gtaccgatga tgaacgtcat caacggcggc 180  
 gaacacgcc acaacagcct gaacatccaa gagtttatga ttatgcccggt cggcgcaaaa 240  
 tctttccgcg aagcgttgcg ctgcggtgcg gaaattttcc acgccttgaa aaaactgtgc 300  
 gacagcaaag gcttcccgac cacagtcggc gacgaaggcg gtttcgcccc caacctgaac 360  
 agccacaaag aagccctgca actgatggc gaggcgaccg aagccgcgg ctacaaagcg 420  
 ggcgaaagcg tattattcgc attggactgc gcctccagcg agttctacaa agacggcaaa 480  
 taccacttgg aagccgaagg ccgctcctac accaacgcgg aatttgccga atatctggaa 540  
 ggcttggtca acgagttccc catcatctcc atcgaagacg gcatggatga aaacgactgg 600  
 gaaggtgga aactgctgac cgaaaaactg ggcggtagag ttcaattggt tggcgacgac 660  
 ttgttcgtaa ccaatccaaa aatcttgccc gaaggcatcg aaaaaggcgt agcaaacgca 720  
 ttgctggta aagtcaatca aatcggtact ttgagcgaga ccctgaaagc cgtcgactta 780  
 gccaaacgca accgctacgc cagcgtaatg agccaccgct ccggcgaaac cgaagacagc 840  
 accattgccg acttggcagt cgccaccaac tgtatgcaga tcaaaaccgg ttctttgagc 900  
 cgttccgacc gcatggcgaa atacaaccaa ctgctgcgta tcgaggaaga attggcgga 960  
 gccgccgact accccagcaa agccgcattc taccaactgg gcaaataa 1008

<210> 2108  
 <211> 335  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2108  
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 Ala Thr Leu Ala Val Ser Met Ala Val Ala Arg Ala Ala Ala Glu Asp  
 20 25 30  
 Ser Gly Leu Pro Leu Tyr Arg Tyr Leu Gly Gly Ala Gly Pro Met Ser  
 35 40 45  
 Leu Pro Val Pro Met Met Asn Val Ile Asn Gly Gly Glu His Ala Asn  
 50 55 60



Asn Ser Leu Asn Ile Gln Glu Phe Met Ile Met Pro Val Gly Ala Lys  
 65 70 75 80  
 Ser Phe Arg Glu Ala Leu Arg Cys Gly Ala Glu Ile Phe His Ala Leu  
 85 90 95  
 Lys Lys Leu Cys Asp Ser Lys Gly Phe Pro Thr Thr Val Gly Asp Glu  
 100 105 110  
 Gly Gly Phe Ala Pro Asn Leu Asn Ser His Lys Glu Ala Leu Gln Leu  
 115 120 125  
 Met Val Glu Ala Thr Glu Ala Ala Gly Tyr Lys Ala Gly Glu Asp Val  
 130 135 140  
 Leu Phe Ala Leu Asp Cys Ala Ser Ser Glu Phe Tyr Lys Asp Gly Lys  
 145 150 155 160  
 Tyr His Leu Glu Ala Glu Gly Arg Ser Tyr Thr Asn Ala Glu Phe Ala  
 165 170 175  
 Glu Tyr Leu Glu Gly Leu Val Asn Glu Phe Pro Ile Ile Ser Ile Glu  
 180 185 190  
 Asp Gly Met Asp Glu Asn Asp Trp Glu Gly Trp Lys Leu Leu Thr Glu  
 195 200 205  
 Lys Leu Gly Gly Arg Val Gln Leu Val Gly Asp Asp Leu Phe Val Thr  
 210 215 220  
 Asn Pro Lys Ile Leu Ala Glu Gly Ile Glu Lys Gly Val Ala Asn Ala  
 225 230 235 240  
 Leu Leu Val Lys Val Asn Gln Ile Gly Thr Leu Ser Glu Thr Leu Lys  
 245 250 255  
 Ala Val Asp Leu Ala Lys Arg Asn Arg Tyr Ala Ser Val Met Ser His  
 260 265 270  
 Arg Ser Gly Glu Thr Glu Asp Ser Thr Ile Ala Asp Leu Ala Val Ala  
 275 280 285  
 Thr Asn Cys Met Gln Ile Lys Thr Gly Ser Leu Ser Arg Ser Asp Arg  
 290 295 300  
 Met Ala Lys Tyr Asn Gln Leu Leu Arg Ile Glu Glu Glu Leu Ala Glu  
 305 310 315 320  
 Ala Ala Asp Tyr Pro Ser Lys Ala Ala Phe Tyr Gln Leu Gly Lys  
 325 330 335

<210> 2109

<211> 1008

<212> DNA

<213> Neisseria meningitidis

<400> 2109

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ttgggcggcg caggcccgat gtccctgccc gtaccgatga tgaacgtcat caacggcggc 180
gaacacgcca acaacagcct gaacatccaa gagtttatga ttatgcccggt cggcgcaaaa 240
tctttccgcg aagcgttgcg ctgcggtgcg gaaattttcc acgccttgaa aaaactgtgc 300
gacagcaaaag gcttcccgaac cacagtccgc gacgaaggcg gtttcgcccc caacctgaac 360
agccacaaaag aagccctgca actgatggc gaggcgaccg aagccgcccg ctacaaagcg 420
ggcgaagacg tattattcgc attggactgc gcgtccagcg agttctacaa agacggcaaa 480
taccacttgg aagccgaagg ccgctcctac accaacgcgg aatttgccga atatctggaa 540
ggcctggtea acgagttccc catcatctcc atcgaagacg ggatggatga aaacgactgg 600
gaaggctgga aactgctgac cgaaaaactg ggccgcaaaag tccaactcgt tggcgacgac 660
ctcttcgtta ccaacccgaa aatccttgcc gaaggcattg aaaaaggcgt ggcaaacgca 720
ctattggtea aagtcaacca aatcggtact ttgagtgaac ccctgaaagc cgtcgactta 780
gccaaacgca accgctacgc cagcgtaatg agccaccgct ccggcgaaac cgaagacagc 840
accattgccg acttggcagt cgccaccaac tgtatgcaga tcaaaaccgg ttctttgagc 900
cgttccgacc gcatggcgaa atacaaccaa ctgctgcgta tcgaggaaga attggcggaa 960
gccgccgact accccagcaa agccgcattc taccaactgg gcaaataa 1008
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<210> 2110

<211> 335

<212> PRT

<213> *Neisseria meningitidis*

<400> 2110

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Met Ile Glu Leu Asp Gly Thr Glu Asn Lys Gly Asn Leu Gly Ala Asn
  1             5             10             15

Ala Thr Leu Ala Val Ser Met Ala Val Ala Arg Ala Ala Ala Glu Asp
      20             25             30

Ser Gly Leu Pro Leu Tyr Arg Tyr Leu Gly Gly Ala Gly Pro Met Ser
    35             40             45

Leu Pro Val Pro Met Met Asn Val Ile Asn Gly Gly Glu His Ala Asn
    50             55             60

Asn Ser Leu Asn Ile Gln Glu Phe Met Ile Met Pro Val Gly Ala Lys
    65             70             75             80

Ser Phe Arg Glu Ala Leu Arg Cys Gly Ala Glu Ile Phe His Ala Leu
      85             90             95

Lys Lys Leu Cys Asp Ser Lys Gly Phe Pro Thr Thr Val Gly Asp Glu
    100            105            110

Gly Gly Phe Ala Pro Asn Leu Asn Ser His Lys Glu Ala Leu Gln Leu
    115            120            125

Met Val Glu Ala Thr Glu Ala Ala Gly Tyr Lys Ala Gly Glu Asp Val
    130            135            140

Leu Phe Ala Leu Asp Cys Ala Ser Ser Glu Phe Tyr Lys Asp Gly Lys
    145            150            155            160
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Tyr His Leu Glu Ala Glu Gly Arg Ser Tyr Thr Asn Ala Glu Phe Ala  
 165 170 175  
 Glu Tyr Leu Glu Gly Leu Val Asn Glu Phe Pro Ile Ile Ser Ile Glu  
 180 185 190  
 Asp Gly Met Asp Glu Asn Asp Trp Glu Gly Trp Lys Leu Leu Thr Glu  
 195 200 205  
 Lys Leu Gly Gly Lys Val Gln Leu Val Gly Asp Asp Leu Phe Val Thr  
 210 215 220  
 Asn Pro Lys Ile Leu Ala Glu Gly Ile Glu Lys Gly Val Ala Asn Ala  
 225 230 235 240  
 Leu Leu Val Lys Val Asn Gln Ile Gly Thr Leu Ser Glu Thr Leu Lys  
 245 250 255  
 Ala Val Asp Leu Ala Lys Arg Asn Arg Tyr Ala Ser Val Met Ser His  
 260 265 270  
 Arg Ser Gly Glu Thr Glu Asp Ser Thr Ile Ala Asp Leu Ala Val Ala  
 275 280 285  
 Thr Asn Cys Met Gln Ile Lys Thr Gly Ser Leu Ser Arg Ser Asp Arg  
 290 295 300  
 Met Ala Lys Tyr Asn Gln Leu Leu Arg Ile Glu Glu Glu Leu Ala Glu  
 305 310 315 320  
 Ala Ala Asp Tyr Pro Ser Lys Ala Ala Phe Tyr Gln Leu Gly Lys  
 325 330 335

<210> 2111

<211> 1287

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 2111

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 gcatccaccg gtcagaaaaga agctttggaa cttcgcgacg gcgacaaaatc ccgctattcc 180  
 ggcaaaggcg tattgaaggc cgtcgaacac gtcaacaacc aaatcgccca agccctcatc 240  
 ggtatcgatg ccaacgagca atcttatatc gaccaaataca tgatcgaatt ggacggtact 300  
 gaaaacaaaag gcaatttggg tgcgaatgcg actttggcgg tctctatggc ggttgacgc 360  
 gccgtgccg aagactcagg cctgccgctt taccgtact tggggggcgc aggtccgatg 420  
 tccctgcccg taccgatgat gaacgtcatc aacggcggcg aacacgcaa caacagcctg 480  
 aacatccaag agtttatgat tatgcccgtc ggcgaaaat ctttcgcga agcgtgcgc 540  
 tgcggtgcgg aaattttcca cgcttgaaa aaactgtgcg acagtaaagg cttcccgacc 600  
 acagtcggcg acgaaggcgg tttcgccccc aacctgaaca gccacaaaaga agccctgcaa 660  
 ctgatggtcg aagcgccga agccgcggc tacaaggcgg gcgaagacgt attattcgca 720  
 ttggaactgc cgtccagcga gttctacaaa gacggcaaata accacttgga agccgaaggc 780  
 cgctcctaca ccaacgcgga atttgccgaa tacttggaag gcttggttaa cgaattccc 840  
 attatttcca ttgaagacgg gatggacgaa aacgactggg aaggctggaa actgctgacc 900  
 gaaaaattgg gcaaaaaagt tcaattggtc ggcgacgact tgttcgtaac caatccgaaa 960  
 attcttgccg aaggcatcga aaaaggcgta gcaaacgcat tgctggtcaa agtcaaccaa 1020

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atcgggtactt taagcgaaac cctgaaagcc gtcgatctgg caaaatgcaa ccgctacgcc 1080
agcgtgatga gccaccgctc cggcgaaacc gaagacagta ccattgccga cttggcagtc 1140
gccaccaact gtatgcagat taaaaccggt tctttgagcc gttccgaccg catggcgaaa 1200
tacaaccaac tgctgcgtat cgaggaagaa ttggcggaag ccgcctacta ccccgcaaaa 1260
gccgcattct accaactggg caaataa 1287

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<210> 2112

<211> 428

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2112

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Met Ser Ala Ile Val Asp Ile Phe Ala Arg Glu Ile Leu Asp Ser Arg
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Gly Asn Pro Thr Val Glu Cys Asp Val Leu Leu Glu Ser Gly Val Met
          20             25             30

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Gly Arg Ala Ala Val Pro Ser Gly Ala Ser Thr Gly Gln Lys Glu Ala
          35             40             45

```

```

Leu Glu Leu Arg Asp Gly Asp Lys Ser Arg Tyr Ser Gly Lys Gly Val
          50             55             60

```

```

Leu Lys Ala Val Glu His Val Asn Asn Gln Ile Ala Gln Ala Leu Ile
          65             70             75             80

```

```

Gly Ile Asp Ala Asn Glu Gln Ser Tyr Ile Asp Gln Ile Met Ile Glu
          85             90             95

```

```

Leu Asp Gly Thr Glu Asn Lys Gly Asn Leu Gly Ala Asn Ala Thr Leu
          100            105            110

```

```

Ala Val Ser Met Ala Val Ala Arg Ala Ala Ala Glu Asp Ser Gly Leu
          115            120            125

```

```

Pro Leu Tyr Arg Tyr Leu Gly Gly Ala Gly Pro Met Ser Leu Pro Val
          130            135            140

```

```

Pro Met Met Asn Val Ile Asn Gly Gly Glu His Ala Asn Asn Ser Leu
          145            150            155            160

```

```

Asn Ile Gln Glu Phe Met Ile Met Pro Val Gly Ala Lys Ser Phe Arg
          165            170            175

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```

Glu Ala Leu Arg Cys Gly Ala Glu Ile Phe His Ala Leu Lys Lys Leu
          180            185            190

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```

Cys Asp Ser Lys Gly Phe Pro Thr Thr Val Gly Asp Glu Gly Gly Phe
          195            200            205

```

```

Ala Pro Asn Leu Asn Ser His Lys Glu Ala Leu Gln Leu Met Val Glu
          210            215            220

```

```

Ala Ala Glu Ala Ala Gly Tyr Lys Ala Gly Glu Asp Val Leu Phe Ala

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225		230		235		240
Leu Asp Cys Ala Ser Ser Glu Phe Tyr Lys Asp Gly Lys Tyr His Leu						
		245		250		255
Glu Ala Glu Gly Arg Ser Tyr Thr Asn Ala Glu Phe Ala Glu Tyr Leu						
		260		265		270
Glu Gly Leu Val Asn Glu Phe Pro Ile Ile Ser Ile Glu Asp Gly Met						
		275		280		285
Asp Glu Asn Asp Trp Glu Gly Trp Lys Leu Leu Thr Glu Lys Leu Gly						
		290		295		300
Lys Lys Val Gln Leu Val Gly Asp Asp Leu Phe Val Thr Asn Pro Lys						
		305		310		315
						320
Ile Leu Ala Glu Gly Ile Glu Lys Gly Val Ala Asn Ala Leu Leu Val						
		325		330		335
Lys Val Asn Gln Ile Gly Thr Leu Ser Glu Thr Leu Lys Ala Val Asp						
		340		345		350
Leu Ala Lys Cys Asn Arg Tyr Ala Ser Val Met Ser His Arg Ser Gly						
		355		360		365
Glu Thr Glu Asp Ser Thr Ile Ala Asp Leu Ala Val Ala Thr Asn Cys						
		370		375		380
Met Gln Ile Lys Thr Gly Ser Leu Ser Arg Ser Asp Arg Met Ala Lys						
		385		390		395
						400
Tyr Asn Gln Leu Leu Arg Ile Glu Glu Glu Leu Ala Glu Ala Ala Tyr						
		405		410		415
Tyr Pro Gly Lys Ala Ala Phe Tyr Gln Leu Gly Lys						
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<210> 2113

<211> 1287

<212> DNA

<213> Neisseria meningitidis

<400> 2113

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gaaaacaaag gcaattttggg tgcgaatgcg actttggcgg tttctatggc ggttgacgcg 360
gccgctgccg aagactcagg cctgccgctt taccgctact tgggcggcgc aggcccgatg 420
tccctgcccg taccgatgat gaacgtcatc aacggcggcg aacacgcca caacagcctg 480
aacatccaag agtttatgat tatgcccgtc ggcgcaaaat ctttccgcga agcgttgcg 540
tgcggtgcgg aaattttcca cgcttgaaa aaactgtgcg acagcaaagg cttcccgacc 600
acagtcggcg acgaaggcg tttcgcccc aacctgaaca gccacaaaga agccctgcaa 660
ctgatggtcg aggcgaccga agccgccggc tacaaagcgg gcgaagacgt attattcgca 720

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ttggactgcg cctccagcga gttctacaaa gacggcaaata accacttgga agccgaaggc 780
cgctcctaca ccaacgcgga atttgccgaa tatctggaag gcctgggtcaa cgagttcccc 840
atcatctcca tcgaagacgg catggatgaa aacgactggg aaggctggaa actgctgacc 900
gaaaaactgg gcggtagagt tcaattgggt ggcgacgact tggtcgtaac caatccaaaa 960
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atcggtactt tgagcgagac cctgaaagcc gtcgacttag ccaaacgcaa ccgctacgcc 1080
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gccaccaact gtatgcagat caaaaccggt tctttgagcc gttccgaccg catggcgaaa 1200
tacaaccaac tgctgcgtat cgaggaagaa ttggcggaag ccgccgacta cccagcaaaa 1260
gccgcattct accaactggg caaataa 1287

```

<210> 2114  
 <211> 428  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2114

Met	Ser	Ala	Ile	Val	Asp	Ile	Phe	Ala	Arg	Glu	Ile	Leu	Asp	Ser	Arg
1				5					10					15	
Gly	Asn	Pro	Thr	Val	Glu	Cys	Asp	Val	Leu	Leu	Glu	Ser	Gly	Val	Met
			20					25					30		
Gly	Arg	Ala	Ala	Val	Pro	Ser	Gly	Ala	Ser	Thr	Gly	Gln	Lys	Glu	Ala
		35					40					45			
Leu	Glu	Leu	Arg	Asp	Gly	Asp	Lys	Ser	Arg	Tyr	Ser	Gly	Lys	Gly	Val
	50					55					60				
Leu	Lys	Ala	Val	Glu	His	Val	Asn	Asn	Gln	Ile	Ala	Gln	Ala	Leu	Ile
	65				70					75					80
Gly	Ile	Asp	Ala	Asn	Glu	Gln	Ser	Tyr	Ile	Asp	Gln	Ile	Met	Ile	Glu
			85						90					95	
Leu	Asp	Gly	Thr	Glu	Asn	Lys	Gly	Asn	Leu	Gly	Ala	Asn	Ala	Thr	Leu
		100						105					110		
Ala	Val	Ser	Met	Ala	Val	Ala	Arg	Ala	Ala	Ala	Glu	Asp	Ser	Gly	Leu
		115					120					125			
Pro	Leu	Tyr	Arg	Tyr	Leu	Gly	Gly	Ala	Gly	Pro	Met	Ser	Leu	Pro	Val
	130					135					140				
Pro	Met	Met	Asn	Val	Ile	Asn	Gly	Gly	Glu	His	Ala	Asn	Asn	Ser	Leu
	145				150					155					160
Asn	Ile	Gln	Glu	Phe	Met	Ile	Met	Pro	Val	Gly	Ala	Lys	Ser	Phe	Arg
			165						170					175	
Glu	Ala	Leu	Arg	Cys	Gly	Ala	Glu	Ile	Phe	His	Ala	Leu	Lys	Lys	Leu
		180						185					190		
Cys	Asp	Ser	Lys	Gly	Phe	Pro	Thr	Thr	Val	Gly	Asp	Glu	Gly	Gly	Phe
	195						200					205			

Ala Pro Asn Leu Asn Ser His Lys Glu Ala Leu Gln Leu Met Val Glu  
 210 215 220  
 Ala Thr Glu Ala Ala Gly Tyr Lys Ala Gly Glu Asp Val Leu Phe Ala  
 225 230 235 240  
 Leu Asp Cys Ala Ser Ser Glu Phe Tyr Lys Asp Gly Lys Tyr His Leu  
 245 250 255  
 Glu Ala Glu Gly Arg Ser Tyr Thr Asn Ala Glu Phe Ala Glu Tyr Leu  
 260 265 270  
 Glu Gly Leu Val Asn Glu Phe Pro Ile Ile Ser Ile Glu Asp Gly Met  
 275 280 285  
 Asp Glu Asn Asp Trp Glu Gly Trp Lys Leu Leu Thr Glu Lys Leu Gly  
 290 295 300  
 Gly Arg Val Gln Leu Val Gly Asp Asp Leu Phe Val Thr Asn Pro Lys  
 305 310 315 320  
 Ile Leu Ala Glu Gly Ile Glu Lys Gly Val Ala Asn Ala Leu Leu Val  
 325 330 335  
 Lys Val Asn Gln Ile Gly Thr Leu Ser Glu Thr Leu Lys Ala Val Asp  
 340 345 350  
 Leu Ala Lys Arg Asn Arg Tyr Ala Ser Val Met Ser His Arg Ser Gly  
 355 360 365  
 Glu Thr Glu Asp Ser Thr Ile Ala Asp Leu Ala Val Ala Thr Asn Cys  
 370 375 380  
 Met Gln Ile Lys Thr Gly Ser Leu Ser Arg Ser Asp Arg Met Ala Lys  
 385 390 395 400  
 Tyr Asn Gln Leu Leu Arg Ile Glu Glu Glu Leu Ala Glu Ala Ala Asp  
 405 410 415  
 Tyr Pro Ser Lys Ala Ala Phe Tyr Gln Leu Gly Lys  
 420 425

<210> 2115

<211> 1287

<212> DNA

<213> *Neisseria meningitidis*

<400> 2115

atgagcgcaa tcgttgatat ttctgcccgc gaaattttgg actcacgcgg caacccca 60  
 gtcgagtgtg atgtattgct cgaatccggc gtaatgggac gcgcagccgt accgagcggc 120  
 gcgtccaccg gtcaaaaaga ggctttggaa cttcgcgacg gcgacaaatc ccgttattcg 180  
 ggcaaggggc tattgaaggc ggtcgaacac gtcaacaacc aaatcgccca agccctcatt 240  
 ggtatcgatg ccaacgagca atcttatatc gaccaaatca tgatcgaatt ggacggtact 300  
 gaaaacaaag gcaatttggg tgcgaatgcg actttggcgg tttctatggc ggttgcacgc 360  
 gccgctgccg aagactcagg cctgccgctt taccgctact tgggcggcgc aggcccgatg 420  
 tccctgcccg taccgatgat gaacgtcatc aacggcggcg aacacgcaa caacagcctg 480

```

aacatccaag agtttatgat tatgcccgtc ggcgcaaaat ctttccgcga agcgttgcg 540
tgcggtgcgg aaattttcca cgccttgaaa aaactgtgcg acagcaaagg cttcccgacc 600
acagtcggcg acgaaggcgg ttctgcccc aacctgaaca gccacaaaga agccctgcaa 660
ctgatggtcg aggcgaccga agccgccggc tacaaagcgg gcgaagacgt attattcgca 720
ttggactgcg cgtccagcga gttctacaaa gacggcaaat accacttgga agccgaaggc 780
cgctcctaca ccaacgcgga atttgccgaa tatctggaag gcctggtcaa cgagttcccc 840
atcatctcca tcgaagacgg gatggatgaa aacgactggg aaggctggaa actgctgacc 900
gaaaaactgg gcggcaaagt ccaactcgtt ggcgacgacc tcttcgttac caaccgaaa 960
atccttgccg aaggcattga aaaaggcgtg gcaaacgcac tattggtcaa agtcaaccaa 1020
atcggtaact tgagtgaaac cctgaaagcc gtcgacttag ccaaacgcaa ccgctacgcc 1080
agcgtaatga gccaccgctc cggcgaaacc gaagacagca ccattgccga cttggcagtc 1140
gccaccaact gtatgcagat caaaaccggt tctttgagcc gttccgaccg catggcgaaa 1200
tacaaccaac tgctgcgtat cgaggaagaa ttggcggaag ccgccgacta cccagcaaaa 1260
gccgcattct accaactggg caaataa 1287

```

<210> 2116

<211> 428

<212> PRT

<213> Neisseria meningitidis

<400> 2116

```

Met Ser Ala Ile Val Asp Ile Phe Ala Arg Glu Ile Leu Asp Ser Arg
  1             5             10             15

```

```

Gly Asn Pro Thr Val Glu Cys Asp Val Leu Leu Glu Ser Gly Val Met
          20             25             30

```

```

Gly Arg Ala Ala Val Pro Ser Gly Ala Ser Thr Gly Gln Lys Glu Ala
          35             40             45

```

```

Leu Glu Leu Arg Asp Gly Asp Lys Ser Arg Tyr Ser Gly Lys Gly Val
          50             55             60

```

```

Leu Lys Ala Val Glu His Val Asn Asn Gln Ile Ala Gln Ala Leu Ile
          65             70             75             80

```

```

Gly Ile Asp Ala Asn Glu Gln Ser Tyr Ile Asp Gln Ile Met Ile Glu
          85             90             95

```

```

Leu Asp Gly Thr Glu Asn Lys Gly Asn Leu Gly Ala Asn Ala Thr Leu
          100             105             110

```

```

Ala Val Ser Met Ala Val Ala Arg Ala Ala Ala Glu Asp Ser Gly Leu
          115             120             125

```

```

Pro Leu Tyr Arg Tyr Leu Gly Gly Ala Gly Pro Met Ser Leu Pro Val
          130             135             140

```

```

Pro Met Met Asn Val Ile Asn Gly Gly Glu His Ala Asn Asn Ser Leu
          145             150             155             160

```

```

Asn Ile Gln Glu Phe Met Ile Met Pro Val Gly Ala Lys Ser Phe Arg
          165             170             175

```

```

Glu Ala Leu Arg Cys Gly Ala Glu Ile Phe His Ala Leu Lys Lys Leu
          180             185             190

```



Cys Asp Ser Lys Gly Phe Pro Thr Thr Val Gly Asp Glu Gly Gly Phe  
 195 200 205  
 Ala Pro Asn Leu Asn Ser His Lys Glu Ala Leu Gln Leu Met Val Glu  
 210 215 220  
 Ala Thr Glu Ala Ala Gly Tyr Lys Ala Gly Glu Asp Val Leu Phe Ala  
 225 230 235 240  
 Leu Asp Cys Ala Ser Ser Glu Phe Tyr Lys Asp Gly Lys Tyr His Leu  
 245 250 255  
 Glu Ala Glu Gly Arg Ser Tyr Thr Asn Ala Glu Phe Ala Glu Tyr Leu  
 260 265 270  
 Glu Gly Leu Val Asn Glu Phe Pro Ile Ile Ser Ile Glu Asp Gly Met  
 275 280 285  
 Asp Glu Asn Asp Trp Glu Gly Trp Lys Leu Leu Thr Glu Lys Leu Gly  
 290 295 300  
 Gly Lys Val Gln Leu Val Gly Asp Asp Leu Phe Val Thr Asn Pro Lys  
 305 310 315 320  
 Ile Leu Ala Glu Gly Ile Glu Lys Gly Val Ala Asn Ala Leu Leu Val  
 325 330 335  
 Lys Val Asn Gln Ile Gly Thr Leu Ser Glu Thr Leu Lys Ala Val Asp  
 340 345 350  
 Leu Ala Lys Arg Asn Arg Tyr Ala Ser Val Met Ser His Arg Ser Gly  
 355 360 365  
 Glu Thr Glu Asp Ser Thr Ile Ala Asp Leu Ala Val Ala Thr Asn Cys  
 370 375 380  
 Met Gln Ile Lys Thr Gly Ser Leu Ser Arg Ser Asp Arg Met Ala Lys  
 385 390 395 400  
 Tyr Asn Gln Leu Leu Arg Ile Glu Glu Glu Leu Ala Glu Ala Ala Asp  
 405 410 415  
 Tyr Pro Ser Lys Ala Ala Phe Tyr Gln Leu Gly Lys  
 420 425

<210> 2117

<211> 492

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 2117

atggcggcgg aaccgatgcg gatgccggag gtaacgtacg gtttttccgg atcgttcggg 60  
 atggcgtttt tgttgacggt gatgtgcgct ttgccc aaag cggcttcggc ggctttgccg 120  
 gtgattttca tcggttcgag gtcgacgagg aaaacgtggc tttcggtgcg gccggaaacg 180  
 atgcgcaaac cgcgtttaac caactcttcc gccatgacgg cagcattgat tttcacttgt 240

```

tttgcgattt gtttgaactc gggttgcaac gcttctttaa acgctacggc tttggcggcg 300
ataacgtgca tcaacggacc gccttgacgg cttgggaaga tggaagagtt cagcgctttt 360
tcgtgggtat tgtaacggca caaaatcaca ccgccgcgag ggccgcgtag ggttttgtgg 420
gtggtagtgg ttacgaagtc gcagaatggc acgggggttag gatattcgcc gccggcaacc 480
agtcggcat ag 492

```

<210> 2118

<211> 163

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2118

```

Met Ala Ala Glu Pro Met Arg Met Pro Glu Val Thr Tyr Gly Phe Ser
  1              5              10              15

```

```

Gly Ser Phe Gly Met Ala Phe Leu Leu Thr Val Met Cys Ala Leu Pro
          20              25              30

```

```

Lys Ala Ala Ser Ala Ala Leu Pro Val Ile Phe Ile Gly Cys Arg Ser
          35              40              45

```

```

Thr Arg Lys Thr Trp Leu Ser Val Arg Pro Glu Thr Met Arg Lys Pro
          50              55              60

```

```

Arg Leu Thr Asn Ser Ser Ala Met Thr Ala Ala Leu Ile Phe Thr Cys
          65              70              75              80

```

```

Phe Ala Tyr Cys Leu Asn Ser Gly Cys Asn Ala Ser Leu Asn Ala Thr
          85              90              95

```

```

Ala Leu Ala Ala Ile Thr Cys Ile Asn Gly Pro Pro Cys Arg Leu Gly
          100             105             110

```

```

Lys Met Glu Glu Phe Ser Ala Phe Ser Trp Val Leu Ser Arg His Lys
          115             120             125

```

```

Ile Thr Pro Pro Arg Gly Pro Arg Arg Val Leu Trp Val Val Val Val
          130             135             140

```

```

Thr Lys Ser Gln Asn Gly Thr Gly Leu Gly Tyr Ser Pro Pro Ala Thr
          145             150             155             160

```

Ser Pro Ala

<210> 2119

<211> 492

<212> DNA

<213> Neisseria meningitidis

<400> 2119

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atggcagcgg agccgatgcg gatgccggag gtaacgaagg gtttttccgg atcgttcgga 60
atggcgtttt tggtgacggt gatgtgcgct ttgcccagaag cggcttcggc ggctttgccc 120
gtaattttca tcggttgacg gtcaacgagg aaaacgtggc tttcggtgcg gccggaacg 180
atgcgcaaac cgcgtttaac caactcttcc gccatggcgg ctgcattgat tttcacttgt 240

```

tttgcgtatt gtttgaactc gggttgcaat gcttctttta acgccacggc tttggcggcg 300  
 ataacgtgca tcagcggacc gccttgcaag cttgggaaga tggaagagtt caacgctttt 360  
 tcgtgggtat tgtcgcgga caaaattacg ccgccgcgag gaccgcgcag ggttttgttg 420  
 gtgggtgggtg tcacgaagtc gcagaacggc accgggttgg gatattcgcc gccggcaacc 480  
 agaccggcat ag 492

<210> 2120  
 <211> 163  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 2120  
 Met Ala Ala Glu Pro Met Arg Met Pro Glu Val Thr Lys Gly Phe Ser  
 1 5 10 15  
 Gly Ser Phe Gly Met Ala Phe Leu Leu Thr Val Met Cys Ala Leu Pro  
 20 25 30  
 Lys Ala Ala Ser Ala Ala Leu Pro Val Ile Phe Ile Gly Cys Arg Ser  
 35 40 45  
 Thr Arg Lys Thr Trp Leu Ser Val Arg Pro Glu Thr Met Arg Lys Pro  
 50 55 60  
 Arg Leu Thr Asn Ser Ser Ala Met Ala Ala Ala Leu Ile Phe Thr Cys  
 65 70 75 80  
 Phe Ala Tyr Cys Leu Asn Ser Gly Cys Asn Ala Ser Leu Asn Ala Thr  
 85 90 95  
 Ala Leu Ala Ala Ile Thr Cys Ile Ser Gly Pro Pro Cys Arg Leu Gly  
 100 105 110  
 Lys Met Glu Glu Phe Asn Ala Phe Ser Trp Val Leu Ser Arg His Lys  
 115 120 125  
 Ile Thr Pro Pro Arg Gly Pro Arg Arg Val Leu Trp Val Val Val Val  
 130 135 140  
 Thr Lys Ser Gln Asn Gly Thr Gly Leu Gly Tyr Ser Pro Pro Ala Thr  
 145 150 155 160  
 Arg Pro Ala

<210> 2121  
 <211> 492  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 2121  
 atggcggcgg aaccgatgcg gatgccggag gtaacgaagg gtttttccgg atcattcggg 60  
 atggcggttt tggtgacagt gatgtgcgct ttgcccaaag cagcttcggc ggctttgccg 120  
 gtaattttca tcggttcgag gtcaacgagg aaaacgtggc tttcgggtgc gccggaaacg 180  
 atgcgcaaac cgcgtttaac caactcttcc gccatggcgg ctgcattgat tttcacttgt 240

```

tttgcgtatt gtttgaactc gggttgcaat gcttctttaa acgccacggc tttggcggcg 300
ataacgtgca tcagcgggcc accttgcagg cttgggaaga tggaagagtt caacgctttt 360
tcgtgggtat tgtcgcggca caaaattacg ccgccgcgag gaccgcgcag ggttttgtgg 420
gtggtggtgg taacgaagtc gcagaacggc acgggattgg gatattcgcc gccggcaacc 480
agaccggcat ag 492

```

<210> 2122

<211> 163

<212> PRT

<213> *Neisseria meningitidis*

<400> 2122

```

Met Ala Ala Glu Pro Met Arg Met Pro Glu Val Thr Lys Gly Phe Ser
  1             5             10             15

Gly Ser Phe Gly Met Ala Phe Leu Leu Thr Val Met Cys Ala Leu Pro
      20             25             30

Lys Ala Ala Ser Ala Ala Leu Pro Val Ile Phe Ile Gly Cys Arg Ser
      35             40             45

Thr Arg Lys Thr Trp Leu Ser Val Arg Pro Glu Thr Met Arg Lys Pro
      50             55             60

Arg Leu Thr Asn Ser Ser Ala Met Ala Ala Ala Leu Ile Phe Thr Cys
      65             70             75             80

Phe Ala Tyr Cys Leu Asn Ser Gly Cys Asn Ala Ser Leu Asn Ala Thr
      85             90             95

Ala Leu Ala Ala Ile Thr Cys Ile Ser Gly Pro Pro Cys Arg Leu Gly
      100            105            110

Lys Met Glu Glu Phe Asn Ala Phe Ser Trp Val Leu Ser Arg His Lys
      115            120            125

Ile Thr Pro Pro Arg Gly Pro Arg Arg Val Leu Trp Val Val Val Val
      130            135            140

Thr Lys Ser Gln Asn Gly Thr Gly Leu Gly Tyr Ser Pro Pro Ala Thr
      145            150            155            160

Arg Pro Ala

```

<210> 2123

<211> 435

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 2123

```

atgccgcggtt tctccggttc gatttcttcg atgatttcca tcgcgcggac ttttggcgcg 60
ccggagagtg tgccggcagg gaaggtggcg gcgaggatgt ccatattggt aacgccctct 120
ttcaaacagc cttcgacggt ggaaacgatg tgcatcacat gggagtattt ttcaatcacc 180

```

attttgtcgg tgactttgac ttcgcctggt ttgctgatgc gtccgacatc gttgcgcccc 240  
 aaatcgataa gcataacgtg ttcggcgatt tctttggcgt cgcttaacaa atcttggtcg 300  
 ttggcaaggt cttcggcggg ggttttgccg cgcaggcgcg tgccggcgat ggggcggacg 360  
 atgacgtcat cgcgttcgcg gcggacgagg atttcgggcg aggaaccgac gatgtgaaaa 420  
 tcgccgaaat cgtag 435

<210> 2124

<211> 144

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 2124

Met	Pro	Arg	Phe	Ser	Gly	Ser	Ile	Ser	Ser	Met	Ile	Ser	Ile	Ala	Arg
1				5				10						15	
Thr	Phe	Gly	Ala	Pro	Glu	Ser	Val	Pro	Ala	Gly	Lys	Val	Ala	Ala	Arg
			20					25					30		
Met	Ser	Ile	Leu	Val	Thr	Pro	Ser	Phe	Lys	Gln	Pro	Ser	Thr	Leu	Glu
		35					40					45			
Thr	Met	Cys	Ile	Thr	Trp	Glu	Tyr	Phe	Ser	Ile	Thr	Ile	Leu	Ser	Val
	50					55					60				
Thr	Leu	Thr	Ser	Pro	Val	Leu	Leu	Met	Arg	Pro	Thr	Ser	Leu	Arg	Pro
	65				70				75					80	
Lys	Ser	Ile	Ser	Ile	Thr	Cys	Ser	Ala	Ile	Ser	Leu	Ala	Ser	Leu	Asn
				85				90						95	
Lys	Ser	Cys	Ser	Leu	Ala	Arg	Ser	Ser	Ala	Gly	Val	Leu	Pro	Arg	Arg
			100					105					110		
Arg	Val	Pro	Ala	Met	Gly	Arg	Thr	Met	Thr	Ser	Ser	Arg	Ser	Arg	Arg
		115				120						125			
Thr	Arg	Ile	Ser	Gly	Glu	Glu	Pro	Thr	Met	Trp	Lys	Ser	Pro	Lys	Ser
	130					135					140				

<210> 2125

<211> 435

<212> DNA

<213> *Neisseria meningitidis*

<400> 2125

atgccgcgtt tgctcggttc gacttcttcg atgatttcca tggcgcggac tttgggtgcg 60  
 ccggagagtg tgccggcagg gaaggtagcg gcgaggatgt ccatgttggt catgccgtct 120  
 ttcagacggc cttcgacgtt ggaaacgatg tgcattacat gggagtattt ttcaatcacc 180  
 attttgtcgg taactttgac ttcgccggtt ttactgatgc ggccgacgtc gttgcgtcct 240  
 aagtcaatca acatgacgtg ttcggcgatt tctttggcat cgcttaacaa atcttggtcg 300  
 ttggcaaggt cttcggcggg ggttttgccg cgcaggcgcg tgccggcgat ggggcggacg 360

ataacgtcgt tgcgttcgcg tcggacgagg atttcgggcg aggagccgac gatgtggaaa 420  
tcgccgaaat cgtag 435

<210> 2126

<211> 144

<212> PRT

<213> Neisseria meningitidis

<400> 2126

Met Pro Arg Leu Leu Gly Ser Thr Ser Ser Met Ile Ser Met Ala Arg  
1 5 10 15

Thr Leu Gly Ala Pro Glu Ser Val Pro Ala Gly Lys Val Ala Ala Arg  
20 25 30

Met Ser Met Leu Val Met Pro Ser Phe Arg Arg Pro Ser Thr Leu Glu  
35 40 45

Thr Met Cys Ile Thr Trp Glu Tyr Phe Ser Ile Thr Ile Leu Ser Val  
50 55 60

Thr Leu Thr Ser Pro Val Leu Leu Met Arg Pro Thr Ser Leu Arg Pro  
65 70 75 80

Lys Ser Ile Asn Met Thr Cys Ser Ala Ile Ser Leu Ala Ser Leu Asn  
85 90 95

Lys Ser Cys Ser Leu Ala Arg Ser Ser Ala Gly Val Leu Pro Arg Arg  
100 105 110

Arg Val Pro Ala Met Gly Arg Thr Ile Thr Ser Leu Arg Ser Arg Arg  
115 120 125

Thr Arg Ile Ser Gly Glu Glu Pro Thr Met Trp Lys Ser Pro Lys Ser  
130 135 140

<210> 2127

<211> 435

<212> DNA

<213> Neisseria meningitidis

<400> 2127

atgccgcgtt tgctcggttc gacttcttcg atgatttcca tggcgcggac tttgggtgcg 60  
ccggagagtg tgccggcagg gaaggtagcg gcgaggatgt ccatgttggt catgccgtct 120  
ttcagacggc cttcgacggt ggaaacgatg tgcattacat gggagtattt ttcaatcacc 180  
atcttgctcg taactttgac ttcgccggtt ttactgatgc ggccgacgtc gttgcgtcct 240  
aagtcaatca acatgacgtg ttcggcgatt tctttggcat cgcttaacaa atcttggttcg 300  
ttggcaaggt cttcggcggg ggttttgccg cgcaggcgcg tgccggcgat ggggcggacg 360  
atgacatcgt cgcgttcgag gcggacgagg atttcgggag aggagccgac gatgtggaaa 420  
tcgccgaaat cgtag 435

<210> 2128  
 <211> 144  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 2128  
 Met Pro Arg Leu Leu Gly Ser Thr Ser Ser Met Ile Ser Met Ala Arg  
   1                  5                  10                  15  
 Thr Leu Gly Ala Pro Glu Ser Val Pro Ala Gly Lys Val Ala Ala Arg  
                   20                  25                  30  
 Met Ser Met Leu Val Met Pro Ser Phe Arg Arg Pro Ser Thr Leu Glu  
                   35                  40                  45  
 Thr Met Cys Ile Thr Trp Glu Tyr Phe Ser Ile Thr Ile Leu Ser Val  
   50                  55                  60  
 Thr Leu Thr Ser Pro Val Leu Leu Met Arg Pro Thr Ser Leu Arg Pro  
   65                  70                  75                  80  
 Lys Ser Ile Asn Met Thr Cys Ser Ala Ile Ser Leu Ala Ser Leu Asn  
                   85                  90                  95  
 Lys Ser Cys Ser Leu Ala Arg Ser Ser Ala Gly Val Leu Pro Arg Arg  
                   100                  105                  110  
 Arg Val Pro Ala Met Gly Arg Thr Met Thr Ser Ser Arg Ser Arg Arg  
                   115                  120                  125  
 Thr Arg Ile Ser Gly Glu Glu Pro Thr Met Trp Lys Ser Pro Lys Ser  
   130                  135                  140

<210> 2129  
 <211> 1137  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 2129  
 atgaacacac cccccatcct tcctcccgcc atgctcggca tcctcggcgg cggacaatta 60  
 ggcagaatgt ttgccgttgc cgctaaaacc atgggctaca aagtaaccgt tctcgatccc 120  
 gacccgaatg cgccggcggc ggaatttgcc gaccgccatt tgtgcgcgcc gtttgacgac 180  
 cgggccgcgt tggacgaatt ggcaaaatgc gcggcggtta cgaccgaatt tgaaaacgac 240  
 aatgccgacg cgatgcgctc tctggcaaag cataccaacg tttccccag cggcgactgc 300  
 gtgtccattg cacaaaaccg cattcaggaa aaagcgtgga tacgcaaagc aggcttgcaa 360  
 accgcgcggt atcaggcggt ttgcaaggcc gaagacatta ctgaagcaag cgcgcaattt 420  
 ttgcccgcca tcctgaaaac ggctacgttg ggctacgacg gcaaaggcca aatccgcgac 480  
 aaaacggttg acgaactcaa agccgcgttt gccgaacacg gcggcggtgga ttgcgttttg 540  
 gaaaaaatgg tggacttgcg cggcgagatt tccgtgatcg tatgccgtct gaacgatgaa 600  
 aacgtgcaaa ctttcgaccc cgccgaaaac atccacgaaa acggcatctt ggcttattcc 660  
 atcgtccccg cgcggtgtag tgccgacgtg cagcaacagg cgcggcagac ggcgcaacgc 720  
 ttggcgagac aattggatta tgcggcgta ttggcggtag aaatgtttgt tgcggcgac 780





225	230	235	240
Leu Ala Asp Glu	Leu Asp Tyr Val Gly Val	Leu Ala Val Glu	Met Phe
245	250	255	
Val Val Gly Asp	Thr His Glu Leu Leu Val Asn Glu Thr	Ala Pro Arg	
260	265	270	
Thr His Asn Ser	Gly His His Thr Ile Asp Ala Cys	Ala Ala Asp Gln	
275	280	285	
Phe Gln Gln Gln	Val Arg Ile Met Cys Asn Leu Pro Pro	Ala Asp Thr	
290	295	300	
Lys Leu Leu Ser	Pro Cys Cys Met Ala Asn Ile Leu Gly Asp	Val Trp	
305	310	315	320
Gln Glu Asp Gly	Gly Glu Pro Asp Trp Leu Pro Leu Gln Ser	Arg Pro	
325	330	335	
Asn Ala His Leu	His Leu Tyr Gly Lys Lys Thr Ala Gln Lys Gly	Arg	
340	345	350	
Lys Met Gly His	Phe Thr Val Leu Thr Thr Asp Ser Asp Thr	Ala Phe	
355	360	365	
Gln Glu Ala Lys	Lys Leu His Gln Ser Leu		
370	375		

<210> 2131  
 <211> 1137  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2131  
 atgaaaaaca tatctctttc tccgcccgcc atgcttggca tctcggcgcg cggacaatta 60  
 ggcagaatgt ttaccgttgc cgccaaaacc atgggctaca aagtaaccgt tctcgacccc 120  
 gatccggacg cgccggcagc agaatttgcc gaccgccatt tgtgcgcgcc gtttaacgac 180  
 caagctgctt tggacgaatt ggcaaaatgc gcggcggtga ccaactgaatt tgaaaacgtc 240  
 aatgccgatg cgatgcgctt tttggcaaaa cataccaatg tttcccctag cggcgattgt 300  
 gtggcgattg cacaaaaccg cattcaggaa aaggcatgga tacgcaaagc gggattgcaa 360  
 accgcgccgt atcaagtggg ttgtaaggct gaagacatca ctgaagcaag cgcgcaatgt 420  
 ttgcccggca tctgaaaaac ggctacgttg ggctacgacg gcaaagggtca aatccgcgta 480  
 aaaacattgg atgaactcaa agccgcgttt gccgaacacg gcggcgtgga ttgcgttttg 540  
 gaaaaaatgg tggatttgcg cagtgaatt tccgtaatcg tatgccgttt gaacaatgac 600  
 aacgtgcaaa ctttcgaccc tgcgaaaaac atccacgaaa acggcatctt ggcttattcc 660  
 atcgtccccg cgcgactgag tgccgacgtg cagcaacagg cgcggcagat ggcgcaacgc 720  
 ttggcgagac aattggatta tgcggcgta ttggcggtag aaatgtttgt tgcggtgac 780  
 acgcatgaat tggtcgtcaa cgaaatcgcc ccgcgccgcg acaattccgg acaccatacg 840  
 atagatgcct gcgcagcaga ccagttccag cagcagggtac gcattatgtg caacctgccg 900  
 cctgccgata ccaaattact gagttcttgc tgtatggcaa atattttggg cgacgttttg 960  
 caggaagacg gcggcgaacc ggattggctg cccttgcaaa gccatccgaa tgcacacctg 1020  
 cacctttacg gcaaaaaaac cgcgcacaaa gggcggaaaa tgggacactt taccgtttta 1080  
 accaccgatt cggacaccgc atttcaagaa gcaaaaaaac tgcacagtc cctataa 1137

<210> 2132  
<211> 378  
<212> PRT  
<213> Neisseria meningitidis

<400> 2132

Met Lys Asn Ile Ser Leu Ser Pro Pro Ala Met Leu Gly Ile Leu Gly  
1 5 10 15

Gly Gly Gln Leu Gly Arg Met Phe Thr Val Ala Ala Lys Thr Met Gly  
20 25 30

Tyr Lys Val Thr Val Leu Asp Pro Asp Pro Asp Ala Pro Ala Ala Glu  
35 40 45

Phe Ala Asp Arg His Leu Cys Ala Pro Phe Asn Asp Gln Ala Ala Leu  
50 55 60

Asp Glu Leu Ala Lys Cys Ala Ala Val Thr Thr Glu Phe Glu Asn Val  
65 70 75 80

Asn Ala Asp Ala Met Arg Phe Leu Ala Lys His Thr Asn Val Ser Pro  
85 90 95

Ser Gly Asp Cys Val Ala Ile Ala Gln Asn Arg Ile Gln Glu Lys Ala  
100 105 110

Trp Ile Arg Lys Ala Gly Leu Gln Thr Ala Pro Tyr Gln Val Val Cys  
115 120 125

Lys Ala Glu Asp Ile Thr Glu Ala Ser Ala Gln Phe Leu Pro Gly Ile  
130 135 140

Leu Lys Thr Ala Thr Leu Gly Tyr Asp Gly Lys Gly Gln Ile Arg Val  
145 150 155 160

Lys Thr Leu Asp Glu Leu Lys Ala Ala Phe Ala Glu His Gly Gly Val  
165 170 175

Asp Cys Val Leu Glu Lys Met Val Asp Leu Arg Ser Glu Ile Ser Val  
180 185 190

Ile Val Cys Arg Leu Asn Asn Asp Asn Val Gln Thr Phe Asp Pro Ala  
195 200 205

Glu Asn Ile His Glu Asn Gly Ile Leu Ala Tyr Ser Ile Val Pro Ala  
210 215 220

Arg Leu Ser Ala Asp Val Gln Gln Gln Ala Arg Gln Met Ala Gln Arg  
225 230 235 240

Leu Ala Asp Glu Leu Asp Tyr Val Gly Val Leu Ala Val Glu Met Phe  
245 250 255

Val Val Gly Asp Thr His Glu Leu Val Val Asn Glu Ile Ala Pro Arg  
260 265 270

Pro His Asn Ser Gly His His Thr Ile Asp Ala Cys Ala Ala Asp Gln  
 275 280 285

Phe Gln Gln Gln Val Arg Ile Met Cys Asn Leu Pro Pro Ala Asp Thr  
 290 295 300

Lys Leu Leu Ser Ser Cys Cys Met Ala Asn Ile Leu Gly Asp Val Trp  
 305 310 315 320

Gln Glu Asp Gly Gly Glu Pro Asp Trp Leu Pro Leu Gln Ser His Pro  
 325 330 335

Asn Ala His Leu His Leu Tyr Gly Lys Lys Thr Ala His Lys Gly Arg  
 340 345 350

Lys Met Gly His Phe Thr Val Leu Thr Thr Asp Ser Asp Thr Ala Phe  
 355 360 365

Gln Glu Ala Lys Lys Leu His Gln Ser Leu  
 370 375

<210> 2133  
 <211> 1137  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2133  
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 ggcagaatgt ttactgttgc tgccaaaacc atgggctaca aagtaaccgt actcgatccc 120  
 aaccggaatg cgccggcagc ggaatttgcc gaccgccatt tgtgtgcgcc gtttgacaac 180  
 caaacgctt tggaagaatt ggcaaaatgt gcggtctgta cgaccgagtt cgaaaacgtc 240  
 aatgccgatg cgtatgcgtt tctcgccaaa cataccaatg tttccccag cggcgactgc 300  
 gttgccatcg cgcaaaaccg cattcaggaa aaggcatgga tacgcaaagc aggcctgcaa 360  
 accgcgccgt atcaagcaat ttgcaaaagg gaagacatca ctgaagaaag catacaattt 420  
 ctgcccggca tcctgaaaac cgctacattg ggctatgacg gcaaaggcca aatccgcgtc 480  
 aaaacggtgg atgaactcaa agccgcgttt gccgaacacc gcggcgtgga ttgcgttttg 540  
 gaaaaaatgg tggacttgcg cggcgaaatt tccgttatcg tatgccgtct gaacaatgac 600  
 aacgtgcaaa ctttcgatcc tgccgaaaac attcacgaaa acggtatcct cgcctactcc 660  
 atcgtcccag cccgactgag tgccgacatt cagcaacagg cgcgacaaat ggcgcagcgt 720  
 ttggccgatg aattgaacta cgtcggcgta ttggcggtag aaatgtttgt tgcgcggcgc 780  
 acgcatgaat tggctgtcaa cgaaatcgcg ccgcgtccgc acaattccgg ccaccatacc 840  
 gtcgacgcct gcgcggcaga ccaattccag caacagggtc gcctgatgtg caacctgcca 900  
 cctgctgaca ccaaattgct gagttcttgc tgtatggcga atattttggg cgacgtttgg 960  
 caggaagacg gcggcgaacc ggattggttt cccctgcaaa gccggccgga cgcgcacctg 1020  
 cacctttacg gcaaaaaaac cgcgcacaaa ggcgggaaaa tgggacactt taccatttta 1080  
 agcaccgatt cggacaccgc atttcaagaa gcaaaaaaac tgcatacgtc cctataa 1137

<210> 2134  
 <211> 378  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2134  
 Met Lys Asn Ile Ser Leu Ser Pro Pro Ala Met Leu Gly Ile Leu Gly  
 1 5 10 15

Gly Gly Gln Leu Gly Arg Met Phe Thr Val Ala Ala Lys Thr Met Gly  
 20 25 30  
 Tyr Lys Val Thr Val Leu Asp Pro Asn Pro Asn Ala Pro Ala Ala Glu  
 35 40 45  
 Phe Ala Asp Arg His Leu Cys Ala Pro Phe Asp Asn Gln Thr Ala Leu  
 50 55 60  
 Glu Glu Leu Ala Lys Cys Ala Ala Val Thr Thr Glu Phe Glu Asn Val  
 65 70 75 80  
 Asn Ala Asp Ala Met Arg Phe Leu Ala Lys His Thr Asn Val Ser Pro  
 85 90 95  
 Ser Gly Asp Cys Val Ala Ile Ala Gln Asn Arg Ile Gln Glu Lys Ala  
 100 105 110  
 Trp Ile Arg Lys Ala Gly Leu Gln Thr Ala Pro Tyr Gln Ala Ile Cys  
 115 120 125  
 Lys Ala Glu Asp Ile Thr Glu Glu Ser Ile Gln Phe Leu Pro Gly Ile  
 130 135 140  
 Leu Lys Thr Ala Thr Leu Gly Tyr Asp Gly Lys Gly Gln Ile Arg Val  
 145 150 155 160  
 Lys Thr Val Asp Glu Leu Lys Ala Ala Phe Ala Glu His Arg Gly Val  
 165 170 175  
 Asp Cys Val Leu Glu Lys Met Val Asp Leu Arg Gly Glu Ile Ser Val  
 180 185 190  
 Ile Val Cys Arg Leu Asn Asn Asp Asn Val Gln Thr Phe Asp Pro Ala  
 195 200 205  
 Glu Asn Ile His Glu Asn Gly Ile Leu Ala Tyr Ser Ile Val Pro Ala  
 210 215 220  
 Arg Leu Ser Ala Asp Ile Gln Gln Gln Ala Arg Gln Met Ala Gln Arg  
 225 230 235 240  
 Leu Ala Asp Glu Leu Asn Tyr Val Gly Val Leu Ala Val Glu Met Phe  
 245 250 255  
 Val Val Gly Asp Thr His Glu Leu Val Val Asn Glu Ile Ala Pro Arg  
 260 265 270  
 Pro His Asn Ser Gly His His Thr Val Asp Ala Cys Ala Ala Asp Gln  
 275 280 285  
 Phe Gln Gln Gln Val Arg Leu Met Cys Asn Leu Pro Pro Ala Asp Thr  
 290 295 300  
 Lys Leu Leu Ser Ser Cys Cys Met Ala Asn Ile Leu Gly Asp Val Trp



Ile Val Gln Thr Ala Tyr Asp His Gly Asn Leu Ala Ala Gln Val His  
                             85                            90                            95  
 His Phe Phe Gln Asn Ala Ile His Ala Ala Val Phe Gly Lys Arg Gly  
                             100                            105                            110  
 Phe Glu Phe Val Gln Arg Phe Asp Ala Asp Leu Thr Phe Ala Val Val  
                             115                            120                            125  
 Ala Gln Arg Ser Arg Phe Gln Asp Ala Gly Gln Lys Leu Arg Ala Cys  
                             130                            135                            140  
 Phe Ser Asn Val Phe Gly Leu Ala Asn Arg Leu Ile Arg Arg Gly Leu  
                             145                            150                            155                            160  
 Gln Ala Cys Phe Ala Tyr Pro Arg Phe Phe Leu Asn Ala Val Leu Cys  
                             165                            170                            175  
 Asn Gly His Ala Val Ala Ala Gly Gly Asn Val Gly Met Leu Cys Gln  
                             180                            185                            190  
 Arg Ala His Arg Val Gly Ile Asp Val Phe Lys Phe Gly Arg Asn Arg  
                             195                            200                            205  
 Arg Ala Phe Cys Gln Phe Val Gln Arg Gly Pro Val Val Lys Arg Arg  
                             210                            215                            220  
 Ala Gln Met Ala Val Gly Lys Phe Arg Arg Arg Arg Ile Arg Val Gly  
                             225                            230                            235                            240  
 Ile Glu Asn Gly Tyr Phe Val Ala His Gly Phe Ser Gly Asn Gly Lys  
                             245                            250                            255  
 His Ser Ala

<210> 2137

<211> 780

<212> DNA

<213> Neisseria meningitidis

<400> 2137

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 ttgcgccatc tgccgcgcct gttgctgcac gtcggcactc agtcgcgcgg ggaacgatgga 180  
 ataagccaag atgccgtttt cgtggatggt ttcggcaggg tcgaaagttt gcacgttgtc 240  
 attgttcaaa cggcatacga ttacggaaat ttcactgcgc aaatccacca ttttttccaa 300  
 aacgcaatcc acgcgcgcgt gttcggcaaa cgcggctttg agttcatcca atgtttttac 360  
 gcggatttga cctttgcgct cgtagcccaa cgtagccgtt ttcaggatgc cgggcaaaaa 420  
 ttgcgcgctt gtttcagtga tgtcttcagc cttacaaacc acttgatacg gcgcggtttg 480  
 caatcccgtt ttgcgtatcc atgccttttc ctgaatgcgg ttttgtgcaa tcgccacaca 540  
 atcgcgcgta ggggaaacat tggatatgtt tgccaaaaag cgcacgcacat cggcattgac 600  
 gttttcaaat tcagtgggtc ccgcccgcga ttttgccaat tcgtccaaag cagcttggtc 660  
 gttaaaccgg gcgcacaaat ggcggtcggc aaattctgct gccggcgcgt ccggatcggg 720  
 gtcgagaacg gttactttgt agcccatggt tttggcggca acggtaaaca ttctgcctaa 780

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<210> 2138
<211> 259
<212> PRT
<213> Neisseria meningitidis
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Met Val Ser Gly Ile Val Arg Ala Arg Gly Asp Phe Val Asp Asp Gln  
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Ile Ile Gln Phe Val Arg Gln Ala Leu Arg His Leu Pro Arg Leu Leu  
35 40 45

Ala Val Phe Val Asp Val Phe Gly Arg Val Glu Ser Leu His Val Val  
65 70 75 80

His Phe Phe Gln Asn Ala Ile His Ala Ala Val Phe Gly Lys Arg Gly  
100 105 110

Ala Gln Arg Ser Arg Phe Gln Asp Ala Gly Gln Lys Leu Arg Ala Cys  
130 135 140

Gln Ser Arg Phe Ala Tyr Pro Cys Leu Phe Leu Asn Ala Val Leu Cys  
165 170 175

Lys Ala His Arg Ile Gly Ile Asp Val Phe Lys Phe Ser Gly His Arg  
195 200 205

Ala Gln Met Ala Val Gly Lys Phe Cys Cys Arg Arg Val Arg Ile Gly  
225 230 235 240

His Ser Ala

<210> 2139  
 <211> 780  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2139  
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 gccgacaaca aacattttcta ccgccaatac gccgacgtag ttcaattcat cggccaaacg 120  
 ctgcgccatt tgtcgcgcct gttgctgaat gtcggcactc agtcgggctg ggacgatgga 180  
 gtaggcgagg ataccgtttt cgtgaatggt ttcggcagga tcgaaagttt gcacgttgtc 240  
 attgttcaga cggcatacga taacggaaat ttcgccgcgc aagtccacca ttttttccaa 300  
 aacgcaatcc acgccgcggt gttcggcaaa cgcggtttg agttcatcca ccgttttgac 360  
 gcggatttg cctttgccgt catagcccaa ttagcgggtt ttcaggatgc cgggcagaaa 420  
 ttgtatgctt tcttcagtga tgtcttcggc tttgcaaatt gcttgatacg gcgcggtttg 480  
 caggcctgct ttgcgtatcc atgccttttc ctgaatgcgg ttttgcgca tggcaacgca 540  
 gtcgccgctg ggggaaacat tggatggtt ggcgagaaaa cgcacgcacat cggcattgac 600  
 gttttcgaac tcggtcgtaa cagccgcaca ttttgccaat tcttccaaag cggtttggtt 660  
 gtcaaacggc gcacacaaat ggcggtcggc aaattccgct gccggcgcat tcgggttggg 720  
 atcgagtacg gttactttgt agcccatggt tttggcagca acagtaaaca ttctgcctaa 780

<210> 2140  
 <211> 259  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2140  
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 1 5 10 15  
 Phe Met Arg Val Ala Asp Asn Lys His Phe Tyr Arg Gln Tyr Ala Asp  
 20 25 30  
 Val Val Gln Phe Ile Gly Gln Thr Leu Arg His Leu Ser Arg Leu Leu  
 35 40 45  
 Leu Asn Val Gly Thr Gln Ser Gly Trp Asp Asp Gly Val Gly Glu Asp  
 50 55 60  
 Thr Val Phe Val Asn Val Phe Gly Arg Ile Glu Ser Leu His Val Val  
 65 70 75 80  
 Ile Val Gln Thr Ala Tyr Asp Asn Gly Asn Phe Ala Ala Gln Val His  
 85 90 95  
 His Phe Phe Gln Asn Ala Ile His Ala Ala Val Phe Gly Lys Arg Gly  
 100 105 110  
 Phe Glu Phe Ile His Arg Phe Asp Ala Asp Leu Ala Phe Ala Val Ile  
 115 120 125  
 Ala Gln Cys Ser Gly Phe Gln Asp Ala Gly Gln Lys Leu Tyr Ala Phe  
 130 135 140  
 Phe Ser Asp Val Phe Gly Phe Ala Asn Cys Leu Ile Arg Arg Gly Leu



145	150	155	160
Gln Ala Cys Phe	Ala Tyr Pro Cys Leu	Phe Leu Asn Ala Val	Leu Arg
	165	170	175
Asp Gly Asn Ala	Val Ala Ala Gly Gly	Asn Ile Gly Met Phe	Gly Glu
	180	185	190
Lys Thr His Arg	Ile Gly Ile Asp Val	Phe Glu Leu Gly	Arg Asn Ser
	195	200	205
Arg Thr Phe Cys	Gln Phe Phe Gln Ser	Gly Leu Val Val	Lys Arg Arg
	210	215	220
Thr Gln Met Ala	Val Gly Lys Phe Arg	Cys Arg Arg Ile	Arg Val Gly
	225	230	235
Ile Glu Tyr Gly	Tyr Phe Val Ala His	Gly Phe Gly Ser	Asn Ser Lys
	245	250	255

His Ser Ala

<210> 2141  
 <211> 897  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 2141  
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 gccgacaaac ccttccgcgc cctctgtcgc gcgtttggcg caggttgggc ggtgtgcgaa 120  
 atgctggcca gcgatccgac gctcaggaat accggaaaaa cctgcaccg cagtgatttt 180  
 gccgatgaag gcggcacgtg tgccgtgcag attgccggca ggcacccga acagatggcg 240  
 gatgcggcgc gttacaacgt cggactcggg gcgcaggtca tcgacatcaa tatgggctgc 300  
 cccgccaaga aagtgtgcaa cgtccaagcc ggtagcgcgc tgatgcagga cgagccgctg 360  
 gttgccgcca ttttgagggc ggtggtcaag gcggcgggcg taccggttac cctcaaaacc 420  
 cgtttggtt ggcacgacga cgatcaaaac ctgcccgcgc tcgcaaaat cgccgaagat 480  
 tgccggcattg ccgcccttgc cgttccacgc gcgcgcgcgc acgcaaattg acaaaggcga 540  
 ggcgcgttac gaactcatcg ccgagaccaa aagccgtctg aacatcccg cctgggtcaa 600  
 cggcgacatc acttcgccgc aaaaagccgc cgcgctcctc aaacaaacgc ccgcgcgcgc 660  
 catcatgata gggcgcggcg cgcaaggcag gccgtggttt ttccgcgatt tgaagcatta 720  
 tgccgaacac ggcgtttttac cgcctgcctt gagtttggca gaatgcagag ccgccatttt 780  
 gaaccacatc cgcgccatgc acgcgtttta tggtagagacc gtcggtgtgc gcatcgcacg 840  
 caaacacata ggctgttaca tcggcgaaat gcccgcacgc gaacaggcgc ggcgtga 897

<210> 2142  
 <211> 298  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 2142  
 Met His Ile Gly Gly Tyr Phe Ile Asp Asn Pro Ile Ala Leu Ala Pro  
 1 5 10 15  
 Met Ala Gly Ile Ala Asp Lys Pro Phe Arg Arg Leu Cys Arg Ala Phe

	20		25		30	
Gly	Ala	Gly	Trp	Ala	Val	Cys
						Glu
						Met
						Leu
						Ala
						Ser
						Asp
						Pro
						Thr
						Leu
	35		40		45	
Arg	Asn	Thr	Gly	Lys	Thr	Leu
	50					His
						Arg
						Ser
						Asp
						Phe
						Ala
						Asp
						Glu
						Gly
Gly	Ile	Val	Ala	Val	Gln	Ile
	65				70	Ala
						Gly
						Ser
						Asp
						Pro
						Glu
						Gln
						Met
						Ala
						80
Asp	Ala	Ala	Arg	Tyr	Asn	Val
				85		Gly
						Leu
						Gly
						Ala
						Gln
						Val
						Ile
						Asp
						Ile
						95
Asn	Met	Gly	Cys	Pro	Ala	Lys
						Lys
						Val
						Cys
						Asn
						Val
						Gln
						Ala
						Gly
						Ser
						100
						105
						110
Ala	Leu	Met	Gln	Asp	Glu	Pro
						Leu
						Val
						Ala
						Ala
						Ile
						Leu
						Glu
						Ala
						Val
						115
						120
						125
Val	Lys	Ala	Ala	Gly	Val	Pro
						Val
						Thr
						Leu
						Lys
						Thr
						Arg
						Leu
						Gly
						Trp
						130
						135
						140
His	Asp	Asp	Asp	Gln	Asn	Leu
						Pro
						Ala
						Val
						Ala
						Lys
						Ile
						Ala
						Glu
						Asp
						145
						150
						155
						160
Cys	Gly	Ile	Ala	Ala	Leu	Ala
						Val
						Pro
						Arg
						Ala
						Arg
						Ala
						His
						Ala
						Asn
						165
						170
						175
Val	Gln	Arg	Arg	Gly	Ala	Leu
						Arg
						Thr
						His
						Arg
						Arg
						Asp
						Gln
						Lys
						Pro
						180
						185
						190
Ser	Glu	His	Pro	Gly	Leu	Gly
						Gln
						Arg
						Arg
						His
						His
						Phe
						Ala
						Ala
						Lys
						195
						200
						205
Ser	Arg	Arg	Arg	Pro	Gln	Thr
						Asn
						Arg
						Arg
						Arg
						His
						His
						Asp
						Arg
						210
						215
						220
Ala	Arg	Arg	Ala	Arg	Gln	Ala
						Val
						Val
						Phe
						Pro
						Arg
						Phe
						Glu
						Ala
						Leu
						225
						230
						235
						240
Cys	Arg	Thr	Arg	Arg	Phe	Thr
						Ala
						Cys
						Leu
						Glu
						Phe
						Gly
						Arg
						Met
						Gln
						245
						250
						255
Ser	Arg	His	Phe	Glu	Pro	His
						Pro
						Arg
						His
						Ala
						Arg
						Val
						Leu
						Trp
						Xaa
						260
						265
						270
Asp	Arg	Arg	Cys	Ala	His	Arg
						Thr
						Gln
						Thr
						His
						Arg
						Leu
						Val
						His
						Arg
						275
						280
						285
Arg	Asn	Ala	Arg	Arg	Arg	Thr
						Gly
						Ala
						Ala
						290
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<210> 2143

<211> 896

<212> DNA

<213> *Neisseria meningitidis*

<400> 2143

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atgctgacca gcgacccgac gctcagaaat actagaaaaa ccttgaccg cagcgatttt 180
gccgatgaag gcggcattgt tgccgtgcag attgccggaa gcgatccgca gcagatggcg 240
gatgccgcgc gttacaacgt cagccttggg gcgcagctta tcgacatcaa catgggctgt 300
cccgctaaaa aagtctgcaa tgtccaagcc ggtagcgcgc tgatgcagaa cgagccgctg 360
gttgccgccca ttttggaagc cgtcgtccgt gcggcaggcg tacccgttac cctcaaaaacc 420
cgtttgggtt ggcacgacga ccatcaaaac ctgcccgtca tcgccaaaat cgccgaagat 480
tgccggcatcg ccgcccttgc cgtccacgga cgcacgcgta cgcaaatgta caaaggcgaa 540
gcgcgttacg aactcatcgc cgaaaccaaa tgccgtctga acatcccggg ctgggtcaac 600
ggcgacatta cttcgccgca aaaagcccaa gccgtcctca aacaaaccgc cgccgacggc 660
attatgatag ggcgcggcgc gcaaggcagg ccgtggttct tccgcgattt gaaacattat 720
gccgaacacg gtgttttgcc gcctgccttg agtttggcag aatgcgccgc cgctattttg 780
aaccacatcc gcgcatata cgcgttttac ggcgacaccg ccggtgtgcg catcgcacgc 840
aaacacatag gctggtacat cgacgaaatg cccgacggcg aacagacacg tcgtga 896
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<210> 2144

<211> 298

<212> PRT

<213> *Neisseria meningitidis*

<400> 2144

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      20              25              30
Gly Ala Gly Trp Ala Val Cys Glu Met Leu Thr Ser Asp Pro Thr Leu
      35              40              45
Arg Asn Thr Arg Lys Thr Leu His Arg Ser Asp Phe Ala Asp Glu Gly
      50              55              60
Gly Ile Val Ala Val Gln Ile Ala Gly Ser Asp Pro Gln Gln Met Ala
      65              70              75              80
Asp Ala Ala Arg Tyr Asn Val Ser Leu Gly Ala Gln Leu Ile Asp Ile
      85              90              95
Asn Met Gly Cys Pro Ala Lys Lys Val Cys Asn Val Gln Ala Gly Ser
     100             105             110
Ala Leu Met Gln Asn Glu Pro Leu Val Ala Ala Ile Leu Glu Ala Val
     115             120             125
Val Arg Ala Ala Gly Val Pro Val Thr Leu Lys Thr Arg Leu Gly Trp
     130             135             140
His Asp Asp His Gln Asn Leu Pro Val Ile Ala Lys Ile Ala Glu Asp
     145             150             155             160
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Cys Gly Ile Ala Ala Leu Ala Val Xaa Arg Thr His Ala Tyr Ala Asn  
 165 170 175  
 Val Gln Arg Arg Ser Ala Leu Arg Thr His Arg Arg Asn Gln Met Pro  
 180 185 190  
 Ser Glu His Pro Gly Leu Gly Gln Arg Arg His Tyr Phe Ala Ala Lys  
 195 200 205  
 Ser Pro Ser Arg Pro Gln Thr Asn Arg Arg Arg Arg His Tyr Asp Arg  
 210 215 220  
 Ala Arg Arg Ala Arg Gln Ala Val Val Leu Pro Arg Phe Glu Thr Leu  
 225 230 235 240  
 Cys Arg Thr Arg Cys Phe Ala Ala Cys Leu Glu Phe Gly Arg Met Arg  
 245 250 255  
 Arg Arg Tyr Phe Glu Pro His Pro Arg His Thr Arg Val Leu Arg Arg  
 260 265 270  
 His Arg Arg Cys Ala His Arg Thr Gln Thr His Arg Leu Val His Arg  
 275 280 285  
 Arg Asn Ala Arg Arg Arg Thr Asp Thr Ser  
 290 295

<210> 2145

<211> 896

<212> DNA

<213> Neisseria meningitidis

<400> 2145

atgcacatcg gcggetatatt tatcgacaac cccatcgcac ttgcgcgat ggcgggcatt 60  
 accgacaaac cgttccgccc actttgcga gatatttggcg cagggtgggc ggtgtgcgaa 120  
 atgctgacca gcgacccgac gctcagaaat actagaaaaa ccttgccacg cagcgatttt 180  
 gccgatgaag gcggcattgt tgccgtgcag attgccggaa gcgatccgca gcagatggcg 240  
 gatgccgcgc gttacaacgt cagccttggg gcgcagctta tcgacatcaa catgggctgt 300  
 cccgctaaaa aagtctgcaa tgtccaagcc ggtagcgcgc tgatgcagaa cgagccgctg 360  
 gttgccgcca ttttgagggc ggtgggtcaaa gcggcgggcg taccggttac cctcaaaacc 420  
 cgtttggtt ggacacgacga ccatcaaaac ctgcccgtca tcgcaaaat cgccgaagat 480  
 tgccgcatcg ccgcccttgc cgtccacgga cgcacgcgca cgcaaagtga caaaggcgaa 540  
 gcggcttacg acctgattgc cgaaaccaa tgccgtctga acatcccgt ctgggtcaac 600  
 ggcgacatta cctcgccgca aaaagccaa gccgtcctca aacaaaccgc cgcagacggc 660  
 attatgatag ggcgcggcgc gcaaggcaga ccgtggttct tccgcgattt gaaacattac 720  
 gccgaacacg gtgttttacc gcctgccttg agtttggcag aatgtaccgc cactattttg 780  
 aaccacatcc gagccatgca cgcgttttac ggcgacaccg ccggtgtgcg catcgacgc 840  
 aaacacatag gctggtacat cgacgaaatg cccgacggcg aacagacacg tcgtga 896

<210> 2146

<211> 298

<212> PRT

<213> Neisseria meningitidis

<400> 2146

Met His Ile Gly Gly Tyr Phe Ile Asp Asn Pro Ile Ala Leu Ala Pro  
1 5 10 15

Met Ala Gly Ile Thr Asp Lys Pro Phe Arg Arg Leu Cys Arg Asp Phe  
20 25 30

Gly Ala Gly Trp Ala Val Cys Glu Met Leu Thr Ser Asp Pro Thr Leu  
35 40 45

Arg Asn Thr Arg Lys Thr Leu His Arg Ser Asp Phe Ala Asp Glu Gly  
50 55 60

Gly Ile Val Ala Val Gln Ile Ala Gly Ser Asp Pro Gln Gln Met Ala  
65 70 75 80

Asp Ala Ala Arg Tyr Asn Val Ser Leu Gly Ala Gln Leu Ile Asp Ile  
85 90 95

Asn Met Gly Cys Pro Ala Lys Lys Val Cys Asn Val Gln Ala Gly Ser  
100 105 110

Ala Leu Met Gln Asn Glu Pro Leu Val Ala Ala Ile Leu Glu Ala Val  
115 120 125

Val Lys Ala Ala Gly Val Pro Val Thr Leu Lys Thr Arg Leu Gly Trp  
130 135 140

His Asp Asp His Gln Asn Leu Pro Val Ile Ala Lys Ile Ala Glu Asp  
145 150 155 160

Cys Gly Ile Ala Ala Leu Ala Xaa Pro Arg Thr His Ala His Ala Asn  
165 170 175

Val Gln Arg Arg Ser Gly Leu Arg Pro Asp Cys Arg Asn Gln Met Pro  
180 185 190

Ser Glu His Pro Gly Leu Gly Gln Arg Arg His Tyr Leu Ala Ala Lys  
195 200 205

Ser Pro Ser Arg Pro Gln Thr Asn Arg Arg Arg Arg His Tyr Asp Arg  
210 215 220

Ala Arg Arg Ala Arg Gln Thr Val Val Leu Pro Arg Phe Glu Thr Leu  
225 230 235 240

Arg Arg Thr Arg Cys Phe Thr Ala Cys Leu Glu Phe Gly Arg Met Tyr  
245 250 255

Arg His Tyr Phe Glu Pro His Pro Ser His Ala Arg Val Leu Arg Arg  
260 265 270

His Arg Arg Cys Ala His Arg Thr Gln Thr His Arg Leu Val His Arg  
275 280 285

Arg Asn Ala Arg Arg Arg Thr Asp Thr Ser  
290 295

<210> 2147  
 <211> 882  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 2147  
 atgtgtaccg agatgaaatt tatatTTTTT gtactgtatg ttttgcagtt tctgccgttt 60  
 gcgctgctgc acaagattgc cggcctgata ggttcgcttg cctaccttct ggtcaaaccg 120  
 cgccgccgta tcggcgaaat caatttggca aaatgttttc ccgaatggga cgaagaaaag 180  
 cgtaaaaccg tgttgaaaca gcatttcaaa cacatggcaa aactgatgct cgaatacggc 240  
 ttatattggt acgcgtctgc caaatgcctg aaatcgctgg tgcgctaccg caataagcat 300  
 tatttgagcg acgcgctggc ggcgggggaa aaagtcata tctgtatccc gcactttacc 360  
 gcgttcgaga tggcggtgta cgcgcttaat caggatgtcc cgctgatcag tatgtattcc 420  
 caccataaaa acaagatatt ggacgaacag attttgaaa gccgcaaccg ctatcacaac 480  
 gtcttcctta tcgggcgcac cgaagggtcg cgcgccctcg tcaaacagtt ccgcaaaagc 540  
 agtgcgccgt tcctgtatct gcccgatcag gatttcggac gcaacaattc ggtttttgtg 600  
 gattttttcg gcattcagac ggcaacgatt accggcttga gccgcattgc cgcgcttgca 660  
 aatgcaaaaag tgataccgcg cattcccgtc cgcgagggcg acaatacggg tacattgcaa 720  
 ttctatcccg cttggaaatc ctttccgagt gaagacgcgc aagccgacgc gcaacgtatg 780  
 aaccgcttta tcgaagaacg cgtgcgcgaa caccgggaac aatatttctg gctgcacaag 840  
 cgtttcaaaa cccgtccgga aggcagcccc gatTTTTTact ga 882

<210> 2148  
 <211> 293  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 2148  
 Met Cys Thr Glu Met Lys Phe Ile Phe Phe Val Leu Tyr Val Leu Gln  
 1 5 10 15  
 Phe Leu Pro Phe Ala Leu Leu His Lys Ile Ala Gly Leu Ile Gly Ser  
 20 25 30  
 Leu Ala Tyr Leu Leu Val Lys Pro Arg Arg Arg Ile Gly Glu Ile Asn  
 35 40 45  
 Leu Ala Lys Cys Phe Pro Glu Trp Asp Glu Glu Lys Arg Lys Thr Val  
 50 55 60  
 Leu Lys Gln His Phe Lys His Met Ala Lys Leu Met Leu Glu Tyr Gly  
 65 70 75 80  
 Leu Tyr Trp Tyr Ala Ser Ala Lys Cys Leu Lys Ser Leu Val Arg Tyr  
 85 90 95  
 Arg Asn Lys His Tyr Leu Asp Asp Ala Leu Ala Ala Gly Glu Lys Val  
 100 105 110  
 Ile Ile Leu Tyr Pro His Phe Thr Ala Phe Glu Met Ala Val Tyr Ala  
 115 120 125  
 Leu Asn Gln Asp Val Pro Leu Ile Ser Met Tyr Ser His Gln Lys Asn  
 130 135 140

Lys Ile Leu Asp Glu Gln Ile Leu Lys Gly Arg Asn Arg Tyr His Asn  
 145 150 155 160  
 Val Phe Leu Ile Gly Arg Thr Glu Gly Leu Arg Ala Leu Val Lys Gln  
 165 170 175  
 Phe Arg Lys Ser Ser Ala Pro Phe Leu Tyr Leu Pro Asp Gln Asp Phe  
 180 185 190  
 Gly Arg Asn Asn Ser Val Phe Val Asp Phe Phe Gly Ile Gln Thr Ala  
 195 200 205  
 Thr Ile Thr Gly Leu Ser Arg Ile Ala Ala Leu Ala Asn Ala Lys Val  
 210 215 220  
 Ile Pro Ala Ile Pro Val Arg Glu Ala Asp Asn Thr Val Thr Leu Gln  
 225 230 235 240  
 Phe Tyr Pro Ala Trp Lys Ser Phe Pro Ser Glu Asp Ala Gln Ala Asp  
 245 250 255  
 Ala Gln Arg Met Asn Arg Phe Ile Glu Glu Arg Val Arg Glu His Pro  
 260 265 270  
 Glu Gln Tyr Phe Trp Leu His Lys Arg Phe Lys Thr Arg Pro Glu Gly  
 275 280 285  
 Ser Pro Asp Phe Tyr  
 290

<210> 2149  
 <211> 882  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 2149  
 atgtgtatcg agatgaaatt tatatTTTTT gtactgtatg ttttgcagtt tctgccgttt 60  
 gcgctgctgc acaagattgc cgacctgacg ggtttgcttg cctaccttct ggtcaaaccg 120  
 cgccgccgta tcggcgaaat caatttggca aaatgttttt ccgaatggag tgaggaaaag 180  
 cgtaaaaccg tgttgaaaca gcatttcaaa cacatggcga aactgatgtt ggaatacggg 240  
 ttatatgggt acgcgcctgc cggacgtttg aaatcgctgg tgcgctaccg caataagcat 300  
 tatattggacg acgcgcctggc ggccgggggaa aaagtcatca tcctgtatcc gcacttcacc 360  
 gcgttcgaga tggcgggtgta cgcgcttaat caggatatcc cgctgatcag tatgtattcc 420  
 catcaaaaaa acaagatatt ggacgaacag attttgaaag gccgcaaccg ctatcacaac 480  
 gtcttcctta tcgggcgcac cgaagggtctg cgcgcctctg tcaaacagtt ccgcaaaagc 540  
 agcgcgcctg ttctgtatct gcccgatcag gatttcggac gcaacgattc ggtttttgtg 600  
 gattttttcg gtattcagac ggcaacgatt accggattga gccgcattgc cgcgcttgca 660  
 aatgcaaaag tgataccgc cattcccgtc cgcgagcgag acaatacggg tacattgcag 720  
 ttctaccctg cttggaaatc ctttccgggt gaagacgca aagccgacgc gcagcgcag 780  
 aaccgtttta tcgaagacag ggtgcgcgaa catccggaac aatatttttg gctgcacaag 840  
 cgttttataaa cccgtccgga aggcagcccc gatttttact ga 882

<210> 2150  
 <211> 293

<212> PRT

<213> Neisseria meningitidis

<400> 2150

Met	Cys	Ile	Glu	Met	Lys	Phe	Ile	Phe	Phe	Val	Leu	Tyr	Val	Leu	Gln
1				5					10					15	
Phe	Leu	Pro	Phe	Ala	Leu	Leu	His	Lys	Ile	Ala	Asp	Leu	Thr	Gly	Leu
			20					25					30		
Leu	Ala	Tyr	Leu	Leu	Val	Lys	Pro	Arg	Arg	Arg	Ile	Gly	Glu	Ile	Asn
		35					40					45			
Leu	Ala	Lys	Cys	Phe	Ser	Glu	Trp	Ser	Glu	Glu	Lys	Arg	Lys	Thr	Val
	50					55					60				
Leu	Lys	Gln	His	Phe	Lys	His	Met	Ala	Lys	Leu	Met	Leu	Glu	Tyr	Gly
65					70					75					80
Leu	Tyr	Trp	Tyr	Ala	Pro	Ala	Gly	Arg	Leu	Lys	Ser	Leu	Val	Arg	Tyr
				85					90					95	
Arg	Asn	Lys	His	Tyr	Leu	Asp	Asp	Ala	Leu	Ala	Ala	Gly	Glu	Lys	Val
			100					105					110		
Ile	Ile	Leu	Tyr	Pro	His	Phe	Thr	Ala	Phe	Glu	Met	Ala	Val	Tyr	Ala
		115					120					125			
Leu	Asn	Gln	Asp	Ile	Pro	Leu	Ile	Ser	Met	Tyr	Ser	His	Gln	Lys	Asn
	130					135					140				
Lys	Ile	Leu	Asp	Glu	Gln	Ile	Leu	Lys	Gly	Arg	Asn	Arg	Tyr	His	Asn
145					150					155					160
Val	Phe	Leu	Ile	Gly	Arg	Thr	Glu	Gly	Leu	Arg	Ala	Leu	Val	Lys	Gln
				165					170					175	
Phe	Arg	Lys	Ser	Ser	Ala	Pro	Phe	Leu	Tyr	Leu	Pro	Asp	Gln	Asp	Phe
			180					185					190		
Gly	Arg	Asn	Asp	Ser	Val	Phe	Val	Asp	Phe	Phe	Gly	Ile	Gln	Thr	Ala
		195					200					205			
Thr	Ile	Thr	Gly	Leu	Ser	Arg	Ile	Ala	Ala	Leu	Ala	Asn	Ala	Lys	Val
	210					215					220				
Ile	Pro	Ala	Ile	Pro	Val	Arg	Glu	Ala	Asp	Asn	Thr	Val	Thr	Leu	His
225					230					235					240
Phe	Tyr	Pro	Ala	Trp	Lys	Ser	Phe	Pro	Gly	Glu	Asp	Ala	Lys	Ala	Asp
				245					250					255	
Ala	Gln	Arg	Met	Asn	Arg	Phe	Ile	Glu	Asp	Arg	Val	Arg	Glu	His	Pro
			260					265					270		
Glu	Gln	Tyr	Phe	Trp	Leu	His	Lys	Arg	Phe	Lys	Thr	Arg	Pro	Glu	Gly
		275					280					285			



Ser Pro Asp Phe Tyr  
290

<210> 2151  
<211> 882  
<212> DNA  
<213> Neisseria meningitidis

<400> 2151  
atgtgtatcg agatgaaatt tatatTTTTT gtactgtatg ttttgcagtt tctgccgttt 60  
gcgctgctgc acaaacttgc tgatctgaca ggcttgctcg cctacctttt ggtcaaacc 120  
cgccgccgta tcggcgaaat caatttggca aaatgcttcc ccgagtggga cggaaaaaag 180  
cgtaaaaccg tgttgaaaca gcatttcaaa catatggcga aactgatgtt ggaatacgg 240  
ttatatgggt acgcgcccgc cgggcgtttg aaatcactgg tgcgctaccg caacaaacat 300  
tatttggacg acgctctggc ggcaggggaa aaagtcatca tctgtatcc gcacttcacc 360  
gcgttcgaga tggcggtgta cgcgctcaat caggatgttc cgctgatcag tatgtattcc 420  
caccaaaaaa acaagatatt ggacgaacag attttgaaag gccgcaaccg ctatcacaac 480  
gttttcctta tcgggcgcac cgaagggctg cgcgccctcg tcaaacagtt ccgcaaaagc 540  
agcgcgcgct ttctgtatct gcccgatcag gatttcggac gcaacgattc ggtttttgtc 600  
gatttccttcg gtattcggac ggcaacgatt accggcttga gccgcattgc cgcgcttgca 660  
aatgcaaaag tgataccgc catccctgtc cgcgaggcgg acaatacgg 720  
ttctaccctg cttgggaatc ctttccgagt gaagatgcgc aggccgacgc gcagcgcag 780  
aaccgtttta tcgaggaacg cgtgcgcgaa catcccagc agtatttttg gctgcacaag 840  
cgtttcaaaa cccgtccgga aggcagcccc gatttttact ga 882

<210> 2152  
<211> 293  
<212> PRT  
<213> Neisseria meningitidis

<400> 2152  
Met Cys Ile Glu Met Lys Phe Ile Phe Phe Val Leu Tyr Val Leu Gln  
1 5 10 15  
Phe Leu Pro Phe Ala Leu Leu His Lys Leu Ala Asp Leu Thr Gly Leu  
20 25 30  
Leu Ala Tyr Leu Leu Val Lys Pro Arg Arg Arg Ile Gly Glu Ile Asn  
35 40 45  
Leu Ala Lys Cys Phe Pro Glu Trp Asp Gly Lys Lys Arg Lys Thr Val  
50 55 60  
Leu Lys Gln His Phe Lys His Met Ala Lys Leu Met Leu Glu Tyr Gly  
65 70 75 80  
Leu Tyr Trp Tyr Ala Pro Ala Gly Arg Leu Lys Ser Leu Val Arg Tyr  
85 90 95  
Arg Asn Lys His Tyr Leu Asp Asp Ala Leu Ala Ala Gly Glu Lys Val  
100 105 110  
Ile Ile Leu Tyr Pro His Phe Thr Ala Phe Glu Met Ala Val Tyr Ala  
115 120 125

Leu Asn Gln Asp Val Pro Leu Ile Ser Met Tyr Ser His Gln Lys Asn  
 130 135 140  
 Lys Ile Leu Asp Glu Gln Ile Leu Lys Gly Arg Asn Arg Tyr His Asn  
 145 150 155 160  
 Val Phe Leu Ile Gly Arg Thr Glu Gly Leu Arg Ala Leu Val Lys Gln  
 165 170 175  
 Phe Arg Lys Ser Ser Ala Pro Phe Leu Tyr Leu Pro Asp Gln Asp Phe  
 180 185 190  
 Gly Arg Asn Asp Ser Val Phe Val Asp Phe Phe Gly Ile Arg Thr Ala  
 195 200 205  
 Thr Ile Thr Gly Leu Ser Arg Ile Ala Ala Leu Ala Asn Ala Lys Val  
 210 215 220  
 Ile Pro Ala Ile Pro Val Arg Glu Ala Asp Asn Thr Val Thr Leu His  
 225 230 235 240  
 Phe Tyr Pro Ala Trp Glu Ser Phe Pro Ser Glu Asp Ala Gln Ala Asp  
 245 250 255  
 Ala Gln Arg Met Asn Arg Phe Ile Glu Glu Arg Val Arg Glu His Pro  
 260 265 270  
 Glu Gln Tyr Phe Trp Leu His Lys Arg Phe Lys Thr Arg Pro Glu Gly  
 275 280 285  
 Ser Pro Asp Phe Tyr  
 290

<210> 2153  
 <211> 552  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 2153  
 atgatacatc cgcaccactt ccgcgccttt ttcataaacg gtcattggtgt agaaattggt 60  
 catctcctca tagctgacgg ggcgcaccgg atgggcggtc gggcctgcgt ctccggggaa 120  
 ctggttctgg cgcagcaggc ggatgttctc gatgcggcgc acggcgcggc cggcgcggtc 180  
 gccggaaaac tcttggtcgc ggaacacggg cagcccttcc ttcagcgaaa gctggaacca 240  
 gtcgcggcag gttacgcggg tgcccgtcca gttgtggaaa tattcgtgtc cgaccacgga 300  
 ttcaatgcct tcgaaatcgg tatcgggtggc ggtgcggctg tcggcgagga cgaacttggg 360  
 gttaaaaaatg ttcaaacctt tgttttccat cgcgccata ttgaaatcgc ctacggcgac 420  
 gaccatgaaa atatccaagt catattccaa cccgaagcgc gtttcgtccc acttcacgcg 480  
 gttttttcaa cgattccaag gcaaagccga ccttggggtt gtccgcttcg gtggtgtaaa 540  
 actcgatttt ga 552

<210> 2154  
 <211> 183  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 2154

Met	Ile	His	Pro	His	His	Phe	Arg	Ala	Phe	Phe	Ile	Asn	Gly	His	Gly
1				5					10					15	
Val	Glu	Ile	Val	His	Leu	Leu	Ile	Ala	Asp	Gly	Ala	His	Arg	Met	Gly
			20					25					30		
Gly	Arg	Ala	Cys	Val	Phe	Gly	Glu	Leu	Val	Leu	Ala	Gln	Gln	Ala	Asp
		35					40					45			
Val	Leu	Asp	Ala	Ala	His	Gly	Ala	Ala	Gly	Ala	Val	Ala	Gly	Lys	Leu
	50					55					60				
Leu	Val	Ala	Glu	His	Gly	Gln	Pro	Phe	Leu	Gln	Arg	Lys	Leu	Glu	Pro
65					70					75				80	
Val	Ala	Ala	Gly	Tyr	Ala	Val	Ala	Arg	Pro	Val	Val	Glu	Ile	Phe	Val
				85				90						95	
Ser	Asp	His	Gly	Phe	Asn	Ala	Phe	Glu	Ile	Gly	Ile	Gly	Gly	Gly	Ala
			100					105					110		
Ala	Val	Gly	Glu	Asp	Glu	Leu	Gly	Val	Lys	Asn	Val	Gln	Thr	Leu	Val
		115					120					125			
Phe	His	Arg	Ala	His	Ile	Glu	Ile	Ala	Tyr	Gly	Asp	Asp	His	Glu	Asn
	130					135					140				
Ile	Gln	Val	Ile	Phe	Gln	Pro	Glu	Ala	Arg	Phe	Val	Pro	Leu	His	Arg
145					150					155				160	
Val	Phe	Ser	Thr	Ile	Pro	Arg	Gln	Ser	Arg	Pro	Trp	Val	Cys	Pro	Leu
				165					170					175	
Arg	Trp	Cys	Lys	Thr	Arg	Phe									
			180												

<210> 2155

<211> 551

<212> DNA

<213> Neisseria meningitidis

<400> 2155

gtgatacatc	cgcactactt	ccgcgccttt	ttcataaacg	gtcatggtgt	agaaattggt	60
catctcctca	tagctggcgg	ggcgcaccgg	atgggcggtc	gggcctgcgt	cttcggggaa	120
ctgggtgctg	cgcagcaggc	ggatgttttc	gatgcggcgc	acggcgcggc	tggcgcggtc	180
gccggaaaat	tcttggtcgc	ggaacacggg	cagcccttcc	ttcagcgaaa	gctggaacca	240
gtcgcggcag	gttacgcggg	tgcccgtcca	gttgtggaaa	tactcgtgtc	cgaccacgga	300
ttcgatgcct	tcgaaatcgg	tatcgggtgg	ggtgcggctg	tcggcaagga	cgaacttggt	360
gttaaagatg	ttcaaacctt	tgttttccat	cgcgcccata	ttgaaatcgc	ccacggcgac	420
gaccatgaaa	atatccaagt	cgtattccaa	accgaagcgc	gtttcgtccc	atttcacgcg	480
gtttttcaac	gattccacgg	caaagccgac	cttgggcttg	tccgcttcgg	tggtgtaaaa	540
ctcgattttg	a					551

<210> 2156  
 <211> 183  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2156  
 Val Ile His Pro His Tyr Phe Arg Ala Phe Phe Ile Asn Gly His Gly  
           1                  5                  10                  15  
 Val Glu Ile Val His Leu Leu Ile Ala Gly Gly Ala His Arg Met Gly  
                   20                  25                  30  
 Gly Arg Ala Cys Val Phe Gly Glu Leu Val Leu Ala Gln Gln Ala Asp  
                   35                  40                  45  
 Val Phe Asp Ala Ala His Gly Ala Ala Gly Ala Val Ala Gly Lys Phe  
                   50                  55                  60  
 Leu Val Ala Glu His Gly Gln Pro Phe Leu Gln Arg Lys Leu Glu Pro  
                   65                  70                  75                  80  
 Val Ala Ala Gly Tyr Ala Val Ala Arg Pro Val Val Glu Ile Leu Val  
                   85                  90                  95  
 Ser Asp His Gly Phe Asp Ala Phe Glu Ile Gly Ile Gly Gly Gly Ala  
                   100                  105                  110  
 Ala Val Gly Lys Asp Glu Leu Gly Val Lys Asp Val Gln Thr Leu Val  
                   115                  120                  125  
 Phe His Arg Ala His Ile Glu Ile Ala His Gly Asp Asp His Glu Asn  
                   130                  135                  140  
 Ile Gln Val Val Phe Gln Thr Glu Ala Arg Phe Val Pro Phe His Arg  
                   145                  150                  155                  160  
 Val Phe Xaa Thr Ile Pro Arg Gln Ser Arg Pro Trp Ala Cys Pro Leu  
                   165                  170                  175  
 Arg Trp Cys Lys Thr Arg Phe  
                   180

<210> 2157  
 <211> 551  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2157  
 gtgatacatc cgcaccactt ccgcgccttt ttcataaacg gtcattggtgt agaaattggt 60  
 catctcctca tatcgggcgg ggcgaccgg atgtgcggtc ggacctgctt cttcggggaa 120  
 ctggtgctgg cgcagcaggc ggatgttttc gatacggcgc acggcgcggc tggcgcggtc 180  
 gccgaaaaat tcttggtcgc ggaacacggg caacccttcc ttcagcgaaa gctggaacca 240  
 gtcgcggcag gtcacgcggg tgcccgtcca gttgtggaaa tattcgtgtc cgaccacgga 300  
 ttcgatgcct tcaaaatcgg tatcgggtggc ggtacggctg tcggcaagga cgaacttggt 360  
 gttaaagatg ttcaaaccct tgttttccat cgcaccata ttgaaatcgc ccacggcgac 420

gaccatgaaa atatccaagt cgtattccaa accgaagcgc gtttcgtccc acttcattgc 480  
 gtttttcagc gattccacgg caaagccgac cttgggcttg tccgcttcgg tgggtgtaaaa 540  
 ctcgattttg a 551

<210> 2158  
 <211> 183  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 2158  
 Val Ile His Pro His His Phe Arg Ala Phe Phe Ile Asn Gly His Gly  
 1 5 10 15  
 Val Glu Ile Val His Leu Leu Ile Ser Gly Gly Ala His Arg Met Cys  
 20 25 30  
 Gly Arg Thr Cys Val Phe Gly Glu Leu Val Leu Ala Gln Gln Ala Asp  
 35 40 45  
 Val Phe Asp Thr Ala His Gly Ala Ala Gly Ala Val Ala Gly Lys Phe  
 50 55 60  
 Leu Val Ala Glu His Gly Gln Pro Phe Leu Gln Arg Lys Leu Glu Pro  
 65 70 75 80  
 Val Ala Ala Gly His Ala Val Ala Arg Pro Val Val Glu Ile Phe Val  
 85 90 95  
 Ser Asp His Gly Phe Asp Ala Phe Lys Ile Gly Ile Gly Gly Gly Thr  
 100 105 110  
 Ala Val Gly Lys Asp Glu Leu Gly Val Lys Asp Val Gln Thr Leu Val  
 115 120 125  
 Phe His Arg Thr His Ile Glu Ile Ala His Gly Asp Asp His Glu Asn  
 130 135 140  
 Ile Gln Val Val Phe Gln Thr Glu Ala Arg Phe Val Pro Leu His Cys  
 145 150 155 160  
 Val Phe Xaa Ala Ile Pro Arg Gln Ser Arg Pro Trp Ala Cys Pro Leu  
 165 170 175  
 Arg Trp Cys Lys Thr Arg Phe  
 180

<210> 2159  
 <211> 1917  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 2159  
 atgaagtggg acgaaacgcg cttcggggttg gaatatgact tggatatttt catggtcgtc 60  
 gccgtaggcg atttcaatat gggcgcgatg gaaaacaagg gtttgaacat ttttaacacc 120  
 aagttcgtcc tcgccgacag ccgcaccgcc accgataccg atttcgaagg cattgaatcc 180

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gtggtcggac acgaatatatt ccacaactgg acgggcaacc gcgtaacctg ccgcgactgg 240
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gcgcaggaag gattgtcgaa agacgtgggc gaaatcgctc gcaagatttt gggttga 1917

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<210> 2160

<211> 638

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2160

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Met Lys Trp Asp Glu Thr Arg Phe Gly Leu Glu Tyr Asp Leu Asp Ile
  1              5              10              15

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Phe Met Val Val Ala Val Gly Asp Phe Asn Met Gly Ala Met Glu Asn
    20              25              30

```

```

Lys Gly Leu Asn Ile Phe Asn Thr Lys Phe Val Leu Ala Asp Ser Arg
    35              40              45

```

```

Thr Ala Thr Asp Thr Asp Phe Glu Gly Ile Glu Ser Val Val Gly His
    50              55              60

```

```

Glu Tyr Phe His Asn Trp Thr Gly Asn Arg Val Thr Cys Arg Asp Trp
    65              70              75              80

```

```

Phe Gln Leu Ser Leu Lys Glu Gly Leu Thr Val Phe Arg Asp Gln Glu
    85              90              95

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Phe Ser Gly Asp Arg Ala Gly Arg Ala Val Arg Arg Ile Glu Asn Ile
   100              105              110

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Arg Leu Leu Arg Gln Asn Gln Phe Pro Glu Asp Ala Gly Pro Thr Ala  
 115 120 125  
 His Pro Val Arg Pro Val Ser Tyr Glu Glu Met Asn Asn Phe Tyr Thr  
 130 135 140  
 Met Thr Val Tyr Glu Lys Gly Ala Glu Val Val Arg Met Tyr His Thr  
 145 150 155 160  
 Leu Leu Gly Glu Glu Gly Phe Gln Lys Gly Met Lys Leu Tyr Phe Gln  
 165 170 175  
 Arg His Asp Gly Gln Ala Val Thr Cys Asp Asp Phe Arg Ala Ala Met  
 180 185 190  
 Ala Asp Ala Asn Gly Ile Asn Leu Asp Gln Phe Ala Leu Trp Tyr Ser  
 195 200 205  
 Gln Ala Gly Thr Pro Val Leu Glu Ala Glu Gly Arg Leu Lys Asn Asn  
 210 215 220  
 Val Phe Glu Leu Thr Ile Lys Gln Thr Val Pro Pro Thr Pro Asp Met  
 225 230 235 240  
 Ala Asp Lys Gln Pro Met Met Ile Pro Val Lys Val Gly Leu Leu Asn  
 245 250 255  
 Arg Asn Gly Glu Ala Val Ala Phe Asp Tyr Gln Gly Lys Arg Ala Thr  
 260 265 270  
 Glu Ala Val Leu Leu Met Thr Glu Ala Glu Gln Ala Phe Pro Leu Glu  
 275 280 285  
 Gly Val Thr Glu Ala Val Val Pro Ser Leu Leu Arg Gly Phe Ser Ala  
 290 295 300  
 Pro Val Tyr Leu Asn Tyr Pro Tyr Ser Asp Asp Asp Leu Leu Leu Leu  
 305 310 315 320  
 Leu Ala His Asp Ser Asp Ala Phe Thr Cys Trp Glu Ala Ala Gln Thr  
 325 330 335  
 Leu Tyr Arg Arg Ala Val Ala Ala Asn Leu Ala Ala Leu Ser Asp Gly  
 340 345 350  
 Ile Gly Leu Pro Lys His Glu Lys Leu Leu Ala Ala Val Glu Lys Val  
 355 360 365  
 Ile Ser Asp Asp Leu Leu Asp Asn Ala Phe Lys Ala Leu Leu Leu Gly  
 370 375 380  
 Val Pro Ser Glu Ala Glu Leu Trp Asp Gly Thr Glu Asn Ile Asp Pro  
 385 390 395 400  
 Leu Arg Tyr His Gln Ala Arg Glu Ala Leu Leu Asp Thr Leu Ala Val  
 405 410 415

Arg Phe Leu Pro Lys Trp His Glu Leu Asp Arg Gln Ala Ala Lys Gln  
 420 425 430  
 Glu Asn Gln Ser Tyr Glu Tyr Ser Pro Glu Thr Ala Asp Trp Arg Thr  
 435 440 445  
 Leu Arg Asn Val Cys Arg Ala Phe Val Leu Arg Ala Asp Pro Ala His  
 450 455 460  
 Ile Glu Thr Val Ala Glu Lys Tyr Gly Glu Met Ala Gln Asn Met Thr  
 465 470 475 480  
 His Glu Trp Gly Ile Leu Ser Ala Val Asn Gly Asn Glu Ser Asp Thr  
 485 490 495  
 Arg Asn Cys Leu Leu Ala Gln Phe Ala Asp Lys Phe Ser Asp Asp Ala  
 500 505 510  
 Leu Val Met Asp Lys Tyr Phe Ala Leu Ile Gly Ser Ser Arg Arg Ser  
 515 520 525  
 Asp Thr Leu Gln Gln Val Gln Thr Ala Leu Gln His Pro Lys Phe Ser  
 530 535 540  
 Leu Glu Asn Pro Asn Lys Ala Arg Ser Leu Ile Gly Ser Phe Ser Arg  
 545 550 555 560  
 Asn Val Pro His Phe His Ala Gln Asp Gly Ser Gly Tyr Arg Phe Ile  
 565 570 575  
 Ala Asp Lys Val Ile Glu Ile Asp Arg Phe Asn Pro Gln Val Ala Ala  
 580 585 590  
 Arg Leu Val Gln Ala Phe Asn Leu Cys Asn Lys Leu Glu Pro His Arg  
 595 600 605  
 Lys Asn Leu Val Lys Gln Glu Leu Gln Cys Ile Arg Ala Gln Glu Gly  
 610 615 620  
 Leu Ser Lys Asp Val Gly Glu Ile Val Gly Lys Ile Leu Gly  
 625 630 635

<210> 2161

<211> 1917

<212> DNA

<213> *Neisseria meningitidis*

<400> 2161

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 aagttcgtcc ttgccgacag ccgcaccgcc accgataccg atttcgaagg catcgaatcc 180  
 gtggtcggac acgagtattt ccacaactgg acgggcaacc gcgtaacctg ccgcgactgg 240  
 ttccagcttt cgctgaagga agggctgacc gtgttccgcg accaagaatt ttccggcgac 300  
 cgcgccagcc gcgccgtgcg ccgcacgcgaa aacatccgcc tgctgcgcca gcaccagttc 360  
 cccgaagacg caggcccgcg cgcccatccg gtgcgccccg ccagctatga ggagatgaac 420



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aattttctaca ccatgaccgt ttatgaaaaa ggcgcggaag tagtgcggtat gtatcacacc 480
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caggccgtta cctgcgacga tttccgcgcg gcgatggcgg acgcgaacgg catcaatctc 600
gaccagttcg ccttggtgta cagccaggcg ggacgcccg ttttggaagc ggaaggtcgt 660
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gccgtcgccg ccaaccttgc cacgctttca gacggcgttg agctgccgaa acacgaaaaa 1080
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gcgcaggaag gattgtcgaa agacgtgggc gaaatcgctg gcaaaatttt ggattga 1917

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<210> 2162

<211> 638

<212> PRT

<213> *Neisseria meningitidis*

<400> 2162

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Met Lys Trp Asp Glu Thr Arg Phe Gly Leu Glu Tyr Asp Leu Asp Ile
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Phe Met Val Val Ala Val Gly Asp Phe Asn Met Gly Ala Met Glu Asn
 20             25             30

Lys Gly Leu Asn Ile Phe Asn Thr Lys Phe Val Leu Ala Asp Ser Arg
 35             40             45

Thr Ala Thr Asp Thr Asp Phe Glu Gly Ile Glu Ser Val Val Gly His
 50             55             60

Glu Tyr Phe His Asn Trp Thr Gly Asn Arg Val Thr Cys Arg Asp Trp
 65             70             75             80

Phe Gln Leu Ser Leu Lys Glu Gly Leu Thr Val Phe Arg Asp Gln Glu
 85             90             95

Phe Ser Gly Asp Arg Ala Ser Arg Ala Val Arg Arg Ile Glu Asn Ile
100            105            110

Arg Leu Leu Arg Gln His Gln Phe Pro Glu Asp Ala Gly Pro Thr Ala
115            120            125

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His	Pro	Val	Arg	Pro	Ala	Ser	Tyr	Glu	Glu	Met	Asn	Asn	Phe	Tyr	Thr	130	135	140
Met	Thr	Val	Tyr	Glu	Lys	Gly	Ala	Glu	Val	Val	Arg	Met	Tyr	His	Thr	145	150	155
Leu	Leu	Gly	Glu	Glu	Gly	Phe	Gln	Lys	Gly	Met	Lys	Leu	Tyr	Phe	Gln	165	170	175
Arg	His	Asp	Gly	Gln	Ala	Val	Thr	Cys	Asp	Asp	Phe	Arg	Ala	Ala	Met	180	185	190
Ala	Asp	Ala	Asn	Gly	Ile	Asn	Leu	Asp	Gln	Phe	Ala	Leu	Trp	Tyr	Ser	195	200	205
Gln	Ala	Gly	Thr	Pro	Val	Leu	Glu	Ala	Glu	Gly	Arg	Leu	Lys	Asn	Asn	210	215	220
Ile	Phe	Glu	Leu	Thr	Val	Lys	Gln	Thr	Val	Pro	Pro	Thr	Pro	Asp	Met	225	230	235
Thr	Asp	Lys	Gln	Pro	Met	Met	Ile	Pro	Val	Lys	Val	Gly	Leu	Leu	Asn	245	250	255
Arg	Asn	Gly	Glu	Ala	Val	Ala	Phe	Asp	Tyr	Gln	Gly	Lys	Arg	Ala	Thr	260	265	270
Glu	Ala	Val	Leu	Leu	Leu	Thr	Glu	Ala	Glu	Gln	Thr	Phe	Leu	Leu	Glu	275	280	285
Gly	Val	Thr	Glu	Ala	Val	Val	Pro	Ser	Leu	Leu	Arg	Gly	Phe	Ser	Ala	290	295	300
Pro	Val	His	Leu	Asn	Tyr	Pro	Tyr	Ser	Asp	Asp	Asp	Leu	Leu	Leu	Leu	305	310	315
Leu	Ala	His	Asp	Ser	Asp	Ala	Phe	Thr	Arg	Trp	Glu	Ala	Ala	Gln	Thr	325	330	335
Leu	Tyr	Arg	Arg	Ala	Val	Ala	Ala	Asn	Leu	Ala	Thr	Leu	Ser	Asp	Gly	340	345	350
Val	Glu	Leu	Pro	Lys	His	Glu	Lys	Leu	Leu	Ala	Ala	Val	Glu	Lys	Val	355	360	365
Ile	Ser	Asp	Asp	Leu	Leu	Asp	Asn	Ala	Phe	Lys	Ala	Leu	Leu	Leu	Gly	370	375	380
Val	Pro	Ser	Glu	Ala	Glu	Leu	Trp	Asp	Gly	Ala	Glu	Asn	Ile	Asp	Pro	385	390	395
Leu	Arg	Tyr	His	Gln	Ala	Arg	Glu	Ala	Leu	Leu	Asp	Thr	Leu	Ala	Val	405	410	415
His	Phe	Leu	Pro	Lys	Trp	His	Glu	Leu	Asn	Arg	Gln	Ala	Ala	Lys	Gln	420	425	430

Glu Asn Gln Ser Tyr Glu Tyr Ser Pro Glu Ala Ala Gly Trp Arg Thr  
 435 440 445  
 Leu Arg Asn Val Cys Arg Ala Phe Val Leu Arg Ala Asp Pro Ala His  
 450 455 460  
 Ile Glu Thr Val Ala Glu Lys Tyr Gly Glu Met Ala Gln Asn Met Thr  
 465 470 475 480  
 His Glu Trp Gly Ile Leu Ser Ala Val Asn Gly Asn Glu Ser Asp Thr  
 485 490 495  
 Arg Asn Arg Leu Leu Ala Gln Phe Ala Asp Lys Phe Ser Asp Asp Ala  
 500 505 510  
 Leu Val Met Asp Lys Tyr Phe Ala Leu Val Gly Ser Ser Arg Arg Ser  
 515 520 525  
 Asp Thr Leu Gln Gln Val Arg Thr Ala Leu Gln His Pro Lys Phe Ser  
 530 535 540  
 Leu Glu Asn Pro Asn Lys Ala Arg Ser Leu Ile Gly Ser Phe Ser Arg  
 545 550 555 560  
 Asn Val Pro His Phe His Ala Glu Asp Gly Ser Gly Tyr Arg Phe Ile  
 565 570 575  
 Ala Asp Lys Val Ile Glu Ile Asp Arg Phe Asn Pro Gln Val Ala Ala  
 580 585 590  
 Arg Leu Val Gln Ala Phe Asn Leu Cys Asn Lys Leu Glu Pro His Arg  
 595 600 605  
 Lys Asn Leu Val Lys Gln Ala Leu Gln Arg Ile Arg Ala Gln Glu Gly  
 610 615 620  
 Leu Ser Lys Asp Val Gly Glu Ile Val Gly Lys Ile Leu Asp  
 625 630 635

<210> 2163  
 <211> 1917  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 2163  
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 aatttctaca ccatgaccgt ttatgaaaaa ggcgcggaag tgggtgcggat gtatcacacc 480  
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 gaccaattcg ctttgtggtg cagccaagca ggtacgccgg ttttagatgc tcaagggcgt 660

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ctgaaaaaca atgtgttcga gttaaccatc aaacaaaccg tgccgcccac gcccgatatg 720
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tgcaacaagc tcgagccgca ccgcaaaaac ttggtgaaac aagcattgca gcgcattcgg 1860
gcgcaggaag gattgtcgaa agacgtgggc gaaatcgctg gcaaaatttt ggattga 1917

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<210> 2164

<211> 638

<212> PRT

<213> Neisseria meningitidis

<400> 2164

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Met Lys Trp Asp Glu Thr Arg Phe Gly Leu Glu Tyr Asp Leu Asp Ile
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Phe Met Val Val Ala Val Gly Asp Phe Asn Met Gly Ala Met Glu Asn
      20             25             30

Lys Gly Leu Asn Ile Phe Asn Thr Lys Phe Val Leu Ala Asp Ser Arg
      35             40             45

Thr Ala Thr Asp Thr Asp Phe Glu Gly Ile Glu Ser Val Val Gly His
      50             55             60

Glu Tyr Phe His Asn Trp Thr Gly Asn Arg Val Thr Cys Arg Asp Trp
      65             70             75            80

Phe Gln Leu Ser Leu Lys Glu Gly Leu Thr Val Phe Arg Asp Gln Glu
      85             90            95

Phe Ser Gly Asp Arg Ala Ser Arg Ala Val Arg Arg Ile Glu Asn Ile
      100            105            110

Arg Leu Leu Arg Gln His Gln Phe Pro Glu Asp Ala Gly Pro Thr Ala
      115            120            125

His Pro Val Arg Pro Ala Arg Tyr Glu Glu Met Asn Asn Phe Tyr Thr
      130            135            140

Met Thr Val Tyr Glu Lys Gly Ala Glu Val Val Arg Met Tyr His Thr

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Leu Leu Gly Glu Glu Gly Phe Gln Lys Gly Met Lys Leu Tyr Phe Gln						
		165		170		175
Arg His Asp Gly Gln Ala Val Thr Cys Asp Asp Phe Arg Ala Ala Met						
		180		185		190
Val Asp Ala Asn Gly Ile Asn Leu Asp Gln Phe Ala Leu Trp Tyr Ser						
		195		200		205
Gln Ala Gly Thr Pro Val Leu Asp Ala Gln Gly Arg Leu Lys Asn Asn						
		210		215		220
Val Phe Glu Leu Thr Ile Lys Gln Thr Val Pro Pro Thr Pro Asp Met						
		225		230		235
Ala Asp Lys Gln Pro Met Met Ile Pro Val Lys Ile Gly Leu Leu Asn						
		245		250		255
Cys Asn Gly Glu Ala Val Ala Phe Asp Tyr Gln Gly Lys Arg Ala Thr						
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Glu Ala Val Leu Leu Leu Thr Glu Ala Glu Gln Thr Phe Gln Phe Glu						
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Ser Val Thr Glu Ala Val Val Pro Ser Leu Leu Arg Gly Phe Ser Ala						
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		325		330		335
Leu Tyr Arg Arg Ala Val Ala Ala Asn Leu Ala Ala Leu Ser Asp Gly						
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Val Glu Leu Pro Lys His Glu Lys Leu Leu Ala Ala Val Glu Lys Val						
		355		360		365
Ile Ser Asp Asp Leu Leu Asp Asn Ala Phe Lys Ala Leu Leu Leu Gly						
		370		375		380
Val Pro Ser Glu Ala Glu Leu Trp Asp Gly Ala Glu Asn Ile Asp Pro						
		385		390		395
Leu Arg Tyr His Gln Ala Arg Glu Ala Leu Leu Asp Ile Leu Ala Val						
		405		410		415
Arg Phe Leu Pro Lys Trp His Glu Leu Asn Arg Gln Ala Ala Lys Gln						
		420		425		430
Glu Asn Gln Ser Tyr Glu Tyr Ser Pro Glu Ala Ala Gly Trp Arg Thr						
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Leu Arg Asn Val Cys Arg Ala Phe Val Leu Arg Ala Asp Pro Ala His  
 450 455 460

Ile Glu Thr Val Ala Glu Lys Tyr Ala Glu Met Ala Gln Asn Met Thr  
 465 470 475 480

His Glu Trp Gly Ile Leu Ser Ala Val Asn Gly Asn Glu Ser Asp Thr  
 485 490 495

Arg Asn Arg Leu Leu Ala Gln Phe Ala Asp Lys Phe Ser Asp Asp Ala  
 500 505 510

Leu Val Met Asp Lys Tyr Phe Ala Leu Val Gly Ser Ser Arg Arg Ser  
 515 520 525

Asp Thr Leu Gln Gln Val Gln Thr Ala Leu Gln His Pro Lys Phe Ser  
 530 535 540

Leu Glu Asn Pro Asn Lys Ala Arg Ser Leu Ile Gly Ser Phe Ser Arg  
 545 550 555 560

Asn Val Pro His Phe His Ala Glu Asp Gly Ser Gly Tyr Arg Phe Ile  
 565 570 575

Ala Asp Lys Val Ile Glu Ile Asp Arg Phe Asn Pro Gln Val Ala Ala  
 580 585 590

Arg Leu Val Gln Ala Phe Asn Leu Cys Asn Lys Leu Glu Pro His Arg  
 595 600 605

Lys Asn Leu Val Lys Gln Ala Leu Gln Arg Ile Arg Ala Gln Glu Gly  
 610 615 620

Leu Ser Lys Asp Val Gly Glu Ile Val Gly Lys Ile Leu Asp  
 625 630 635

<210> 2165

<211> 2604

<212> DNA

<213> Neisseria gonorrhoeae

<400> 2165

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<210> 2166

<211> 867

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 2166

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Met Ser Lys Thr Val Arg Tyr Leu Lys Asp Tyr Gln Thr Pro Ala Tyr
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Arg Ile Leu Glu Thr Glu Leu His Phe Asp Ile Ala Glu Pro Gln Thr
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Val Val Lys Ser Arg Leu Thr Val Glu Pro Gln Arg Ala Gly Glu Pro
      35             40             45

Leu Val Leu Asp Gly Ser Ala Lys Leu Leu Ser Val Lys Ile Asn Gly
      50             55             60

Ala Ala Ala Asp Tyr Val Leu Glu Gly Glu Thr Leu Thr Ile Ala Asp
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Val Pro Ser Glu Arg Phe Thr Val Glu Val Glu Thr Glu Ile Leu Pro
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Ala Glu Asn Lys Ser Leu Met Gly Leu Tyr Ala Ser Gly Gly Asn Leu

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Arg	Met	Tyr	His	Thr	Leu	Leu	Gly	Glu	Glu	Gly	Phe	Gln	Lys	Gly	Met
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Lys	Leu	Tyr	Phe	Gln	Arg	His	Asp	Gly	Gln	Ala	Val	Thr	Cys	Asp	Asp



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Ala	Asp	Trp	Arg	Thr	Leu	Arg	Asn	Val	Cys	Arg	Ala	Phe	Val	Leu	Arg					
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<211> 867

<212> PRT

<213> *Neisseria meningitidis*

<400> 2168

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35 40 45

Leu Val Leu Asp Gly Ser Ala Lys Leu Leu Ser Val Lys Ile Asn Gly  
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Ala Ala Ala Asp Tyr Val Leu Glu Gly Glu Thr Leu Thr Ile Ala Gly  
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Val Pro Ser Glu Arg Phe Thr Val Glu Val Glu Thr Glu Ile Leu Pro  
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Ala Glu Asn Lys Ser Leu Met Gly Leu Tyr Ala Ser Gly Gly Asn Leu  
100 105 110

Phe Thr Gln Cys Glu Pro Glu Gly Phe Arg Lys Ile Thr Phe Tyr Ile

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Lys	Lys	Arg	Tyr	Pro	Val	Leu	Leu	Ser	Asn	Gly	Asn	Lys	Ile	Asp	Gly	
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Ser	Lys	Pro	Ser	Tyr	Leu	Phe	Ala	Leu	Val	Ala	Gly	Asp	Leu	Ala	Val	
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Thr	Glu	Asp	Tyr	Phe	Thr	Thr	Met	Ser	Gly	Arg	Asn	Val	Lys	Ile	Glu	
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Phe	Arg	Asp	Gln	Glu	Phe	Ser	Gly	Asp	Arg	Ala	Ser	Arg	Ala	Val	Arg	
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Arg	Ile	Glu	Asn	Ile	Arg	Leu	Leu	Arg	Gln	His	Gln	Phe	Pro	Glu	Asp	
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Ala	Gly	Pro	Thr	Ala	His	Pro	Val	Arg	Pro	Ala	Ser	Tyr	Glu	Glu	Met	
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Asn	Asn	Phe	Tyr	Thr	Met	Thr	Val	Tyr	Glu	Lys	Gly	Ala	Glu	Val	Val	
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Arg	Met	Tyr	His	Thr	Leu	Leu	Gly	Glu	Glu	Gly	Phe	Gln	Lys	Gly	Met	
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Lys	Leu	Tyr	Phe	Gln	Arg	His	Asp	Gly	Gln	Ala	Val	Thr	Cys	Asp	Asp	
405					410					415						
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755	760	765
His Pro Lys Phe Ser Leu Glu Asn Pro Asn Lys Ala Arg Ser Leu Ile		
770	775	780
Gly Ser Phe Ser Arg Asn Val Pro His Phe His Ala Glu Asp Gly Ser		
785	790	800
Gly Tyr Arg Phe Ile Ala Asp Lys Val Ile Glu Ile Asp Arg Phe Asn		
805	810	815
Pro Gln Val Ala Ala Arg Leu Val Gln Ala Phe Asn Leu Cys Asn Lys		
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Leu Glu Pro His Arg Lys Asn Leu Val Lys Gln Ala Leu Gln Arg Ile		
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<210> 2169

<211> 2604

<212> DNA

<213> Neisseria meningitidis

<400> 2169

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<210> 2170

<211> 867

<212> PRT

<213> *Neisseria meningitidis*

<400> 2170

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His Ile Leu Lys Thr Asp Leu His Phe Asp Ile Asn Glu Pro Gln Thr
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Ile Val Lys Ser Arg Leu Thr Val Glu Pro Lys Arg Val Gly Glu Pro
      35              40             45

Leu Val Leu Asp Gly Ser Ala Lys Leu Leu Ser Val Lys Ile Asn Gly
      50              55             60

Val Ala Ala Asp Tyr Val Leu Glu Gly Glu Thr Leu Thr Ile Ala Asp
      65              70             75             80

Val Pro Ser Glu Arg Phe Thr Val Glu Val Glu Thr Glu Ile Leu Pro
      85              90             95

Ala Glu Asn Lys Ser Leu Met Gly Leu Tyr Ala Ser Ala Gly Asn Leu
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Phe Thr Gln Cys Glu Pro Glu Gly Phe Arg Lys Ile Thr Phe Tyr Ile
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Asp Arg Pro Asp Val Met Ser Lys Phe Thr Thr Thr Ile Val Ala Asp
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 Phe Tyr Thr Thr Glu Ala Asp Lys Pro Lys Val Gly Phe Ala Val Glu  
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 Thr Cys Arg Asp Trp Phe Gln Leu Ser Leu Lys Glu Gly Leu Thr Val  
 305 310 315 320  
 Phe Arg Asp Gln Glu Phe Ser Gly Asp Arg Ala Ser Arg Ala Val Arg  
 325 330 335  
 Arg Ile Glu Asn Ile Arg Leu Leu Arg Gln His Gln Phe Pro Glu Asp  
 340 345 350  
 Ala Gly Pro Thr Ala His Pro Val Arg Pro Ala Arg Tyr Glu Glu Met  
 355 360 365  
 Asn Asn Phe Tyr Thr Met Thr Val Tyr Glu Lys Gly Ala Glu Val Val  
 370 375 380  
 Arg Met Tyr His Thr Leu Leu Gly Glu Glu Gly Phe Gln Lys Gly Met  
 385 390 395 400  
 Lys Leu Tyr Phe Gln Arg His Asp Gly Gln Ala Val Thr Cys Asp Asp  
 405 410 415  
 Phe Arg Ala Ala Met Val Asp Ala Asn Gly Ile Asn Leu Asp Gln Phe  
 420 425 430  
 Ala Leu Trp Tyr Ser Gln Ala Gly Thr Pro Val Leu Asp Ala Gln Gly  
 435 440 445



Arg Leu Lys Asn Asn Val Phe Glu Leu Thr Ile Lys Gln Thr Val Pro  
 450 455 460

Pro Thr Pro Asp Met Ala Asp Lys Gln Pro Met Met Ile Pro Val Lys  
 465 470 475 480

Ile Gly Leu Leu Asn Cys Asn Gly Glu Ala Val Ala Phe Asp Tyr Gln  
 485 490 495

Gly Lys Arg Ala Thr Glu Ala Val Leu Leu Leu Thr Glu Ala Glu Gln  
 500 505 510

Thr Phe Gln Phe Glu Ser Val Thr Glu Ala Val Val Pro Ser Leu Leu  
 515 520 525

Arg Gly Phe Ser Ala Pro Val His Leu Asn Tyr Pro Tyr Ser Asp Asp  
 530 535 540

Asp Leu Leu Leu Leu Leu Ala His Asp Ser Asp Ala Phe Thr Arg Trp  
 545 550 555 560

Glu Ala Ala Gln Thr Leu Tyr Arg Arg Ala Val Ala Ala Asn Leu Ala  
 565 570 575

Ala Leu Ser Asp Gly Val Glu Leu Pro Lys His Glu Lys Leu Leu Ala  
 580 585 590

Ala Val Glu Lys Val Ile Ser Asp Asp Leu Leu Asp Asn Ala Phe Lys  
 595 600 605

Ala Leu Leu Leu Gly Val Pro Ser Glu Ala Glu Leu Trp Asp Gly Ala  
 610 615 620

Glu Asn Ile Asp Pro Leu Arg Tyr His Gln Ala Arg Glu Ala Leu Leu  
 625 630 635 640

Asp Ile Leu Ala Val Arg Phe Leu Pro Lys Trp His Glu Leu Asn Arg  
 645 650 655

Gln Ala Ala Lys Gln Glu Asn Gln Ser Tyr Glu Tyr Ser Pro Glu Ala  
 660 665 670

Ala Gly Trp Arg Thr Leu Arg Asn Val Cys Arg Ala Phe Val Leu Arg  
 675 680 685

Ala Asp Pro Ala His Ile Glu Thr Val Ala Glu Lys Tyr Ala Glu Met  
 690 695 700

Ala Gln Asn Met Thr His Glu Trp Gly Ile Leu Ser Ala Val Asn Gly  
 705 710 715 720

Asn Glu Ser Asp Thr Arg Asn Arg Leu Leu Ala Gln Phe Ala Asp Lys  
 725 730 735

Phe Ser Asp Asp Ala Leu Val Met Asp Lys Tyr Phe Ala Leu Val Gly  
 740 745 750

Ser Ser Arg Arg Ser Asp Thr Leu Gln Gln Val Gln Thr Ala Leu Gln  
755 760 765

His Pro Lys Phe Ser Leu Glu Asn Pro Asn Lys Ala Arg Ser Leu Ile  
770 775 780

Gly Ser Phe Ser Arg Asn Val Pro His Phe His Ala Glu Asp Gly Ser  
785 790 795 800

Gly Tyr Arg Phe Ile Ala Asp Lys Val Ile Glu Ile Asp Arg Phe Asn  
805 810 815

Pro Gln Val Ala Ala Arg Leu Val Gln Ala Phe Asn Leu Cys Asn Lys  
820 825 830

Leu Glu Pro His Arg Lys Asn Leu Val Lys Gln Ala Leu Gln Arg Ile  
835 840 845

Arg Ala Gln Glu Gly Leu Ser Lys Asp Val Gly Glu Ile Val Gly Lys  
850 855 860

Ile Leu Asp  
865

<210> 2171

<211> 540

<212> DNA

<213> Neisseria gonorrhoeae

<400> 2171

atgctttgta tgaattatca atcaaactca ggccaaggag tgctttagtc taaaacatat 60  
ttattgactg cattgataat gtctatggta atctccggat gtcaagtcac ccatgccaat 120  
caaggtaagg ttaataactaa ttctgctgtc atcgagggtg cagacgctca cacgcctgaa 180  
catgtaacgg gactgaccga acaaaagcag gtgattgcaa gtgattttat agtagcgta 240  
gccaatccat tagcaacaca agctggctat gatattctta agcaaggcgg tagcgctgca 300  
gatgcgatgg tggcggtgca gacgacacta agcttggtag agccacagtc gtcaggcttg 360  
ggcggtggtg catttggtt gtattgggac aataccgcca aaacattgac cacatttgat 420  
ggcggtgaga cggcaccgat gcgtgagcgc ccagaattat ttttgataa agatgggtta 480  
ccattgaaat ttatggaagc ggtgggtcgc cggtagggtac gcctgctatc cctaaactga 540

<210> 2172

<211> 179

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2172

Met Leu Cys Met Asn Tyr Gln Ser Asn Ser Gly Glu Gly Val Leu Val  
1 5 10 15

Ala Lys Thr Tyr Leu Leu Thr Ala Leu Ile Met Ser Met Val Ile Ser  
20 25 30

Gly Cys Gln Val Ile His Ala Asn Gln Gly Lys Val Asn Thr Asn Ser  
35 40 45

Ala Val Ile Ala Gly Ala Asp Ala His Thr Pro Glu His Val Thr Gly  
50 55 60

Leu Thr Glu Gln Lys Gln Val Ile Ala Ser Asp Phe Ile Val Ala Ser  
65 70 75 80

Ala Asn Pro Leu Ala Thr Gln Ala Gly Tyr Asp Ile Leu Lys Gln Gly  
85 90 95

Gly Ser Ala Ala Asp Ala Met Val Ala Val Gln Thr Thr Leu Ser Leu  
100 105 110

Val Glu Pro Gln Ser Ser Gly Leu Gly Gly Gly Ala Phe Val Leu Tyr  
115 120 125

Trp Asp Asn Thr Ala Lys Thr Leu Thr Thr Phe Asp Gly Arg Glu Thr  
130 135 140

Ala Pro Met Arg Ala Thr Pro Glu Leu Phe Leu Asp Lys Asp Gly Xaa  
145 150 155 160

Pro Leu Lys Phe Met Glu Ala Val Val Ala Arg Xaa Val Arg Leu Leu  
165 170 175

Ser Leu Asn

<210> 2173  
<211> 546  
<212> DNA  
<213> Neisseria meningitidis

<400> 2173  
atgccttgta tgaatcatca atcaaactca ggcgaaggag tgcttggtggc taaaacatat 60  
ttattgactg cattgataat gtctatgaca atctctggat gtcaagtcac ccatgccaat 120  
caaggtaagg ttaataactca ttctgctgtc atcacagggtg cagacgctca cacgcctgaa 180  
catgcaacgg gactgaccga acaaaagcag gtgattgcaa gtgattttat ggtagcgtca 240  
gccaatccat tagcaacaca agctggctat gatattctta agcaaggcgg tagcgctgca 300  
gatgcatggt tggcggtgca gacgacacta agcttggttag agccacagtc gtcaggcttg 360  
ggcggtggtg catttgtgtt gtattgggat aataccgcca aaacattgac cacatttgat 420  
gggcgtgaga cggcaccgat gcgtgacgac ccggaattat ttttgataa agatgggtcaa 480  
ccattgaaat ttatggaagc ggtggctcgtg gtcgctcggt gggtacgcct gctatcccta 540  
aactga 546

<210> 2174  
<211> 181  
<212> PRT  
<213> Neisseria meningitidis

<400> 2174  
Met Pro Cys Met Asn His Gln Ser Asn Ser Gly Glu Gly Val Leu Val  
1 5 10 15

Ala Lys Thr Tyr Leu Leu Thr Ala Leu Ile Met Ser Met Thr Ile Ser

	20		25		30
Gly Cys Gln Val Ile His Ala Asn Gln Gly Lys Val Asn Thr His Ser					
	35		40		45
Ala Val Ile Thr Gly Ala Asp Ala His Thr Pro Glu His Ala Thr Gly					
	50		55		60
Leu Thr Glu Gln Lys Gln Val Ile Ala Ser Asp Phe Met Val Ala Ser					
	65		70		75
Ala Asn Pro Leu Ala Thr Gln Ala Gly Tyr Asp Ile Leu Lys Gln Gly					
		85		90	95
Gly Ser Ala Ala Asp Ala Met Val Ala Val Gln Thr Thr Leu Ser Leu					
	100		105		110
Val Glu Pro Gln Ser Ser Gly Leu Gly Gly Gly Ala Phe Val Leu Tyr					
	115		120		125
Trp Asp Asn Thr Ala Lys Thr Leu Thr Thr Phe Asp Gly Arg Glu Thr					
	130		135		140
Ala Pro Met Arg Ala Thr Pro Glu Leu Phe Leu Asp Lys Asp Gly Gln					
	145		150		155
Pro Leu Lys Phe Met Glu Ala Val Val Val Val Ala Arg Trp Val Arg					
		165		170	175
Leu Leu Ser Leu Asn					
	180				

<210> 2175  
 <211> 546  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2175  
 atgccttgta tgaatcatca atcaaactca ggcgaaggag tgcttggtggc taaaacatat 60  
 ttattgactg cattgataat gtctatgaca atctctggat gtcaagtcac ccatgccaat 120  
 caaggtaagg ttaataactca ttctgctgtc atcacagggtg cagacgctca cagcctgaa 180  
 catgcaacgg gactgaccga acaaaagcag gtgattgcaa gtgattttat ggtagcgtca 240  
 gccaatccat tagcaacaca agctggctat gatattctta agcaaggcgg tagcgctgca 300  
 gatgcgatgg tggcgggtgca gacgacacta agcttggttag agccacagtc gtcaggcttg 360  
 ggcgggtggt catttggtgt gtattgggat aataccgccaa aaacattgac cacatttgat 420  
 gggcgtgaga cggcaccgat gcgtgacgac cgggaattat ttttgataa agatgggtcaa 480  
 ccattgaaat ttatggaagc ggtggtcgtg gtcgctcggt gggtagcgcct gctatcccta 540  
 aactga 546

<210> 2176  
 <211> 181  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2176

Met	Pro	Cys	Met	Asn	His	Gln	Ser	Asn	Ser	Gly	Glu	Gly	Val	Leu	Val
1				5				10						15	
Ala	Lys	Thr	Tyr	Leu	Leu	Thr	Ala	Leu	Ile	Met	Ser	Met	Thr	Ile	Ser
			20					25					30		
Gly	Cys	Gln	Val	Ile	His	Ala	Asn	Gln	Gly	Lys	Val	Asn	Thr	His	Ser
		35					40					45			
Ala	Val	Ile	Thr	Gly	Ala	Asp	Ala	His	Thr	Pro	Glu	His	Ala	Thr	Gly
	50					55					60				
Leu	Thr	Glu	Gln	Lys	Gln	Val	Ile	Ala	Ser	Asp	Phe	Met	Val	Ala	Ser
65					70					75					80
Ala	Asn	Pro	Leu	Ala	Thr	Gln	Ala	Gly	Tyr	Asp	Ile	Leu	Lys	Gln	Gly
				85					90					95	
Gly	Ser	Ala	Ala	Asp	Ala	Met	Val	Ala	Val	Gln	Thr	Thr	Leu	Ser	Leu
		100						105					110		
Val	Glu	Pro	Gln	Ser	Ser	Gly	Leu	Gly	Gly	Gly	Ala	Phe	Val	Leu	Tyr
	115						120					125			
Trp	Asp	Asn	Thr	Ala	Lys	Thr	Leu	Thr	Thr	Phe	Asp	Gly	Arg	Glu	Thr
	130					135					140				
Ala	Pro	Met	Arg	Ala	Thr	Pro	Glu	Leu	Phe	Leu	Asp	Lys	Asp	Gly	Gln
145					150					155					160
Pro	Leu	Lys	Phe	Met	Glu	Ala	Val	Val	Val	Val	Ala	Arg	Trp	Val	Arg
				165					170					175	
Leu	Leu	Ser	Leu	Asn											
			180												

<210> 2177

<211> 813

<212> DNA

<213> Neisseria gonorrhoeae

<400> 2177

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atgCGgtttg tcttctgttt gggcggagag atagtttctg atccgtgtga tttccatttg 60
gtattcgtcc gcgtcgaatc tgccgctgac cagacagaaa cgcagataca tcaaatacgt 120
attcacggca tcggtttcgc aataattgcy gatttccttc agcgtgcccg cgtggaacgc 180
ttcccacact ttgctgccgt ccatacccag cttgcccgga aagccgcaca gtttcgccat 240
atcgccagc ggcacattcg ccctcggctg gtaaagcgcg agcaaatcca tcaaatcgca 300
gtggcgttgg tgataacggc tgatgtagtt gttccacttg aaatcgcggc tgtcgccgaa 360
atcgccgtcg cccgtatccc aatagcgcg cgcgttgatg ccgtatatca gggagcggta 420
atgcagtagc ggcaggtcga aaccgccgcc gttccagctg accagttgcg gcgtatgttt 480
ttcaaccaat tcgaaaaact tggcaatcac gacttcttcg ccatacgtcca tctcgccgat 540
ggtgccgaca tgaaccttgt cctgccccca ggcatacag caggaaaccg ccacaacctg 600
atggaggtgg tgctgcataa aatcgccgcc ggtctgtgcg cggcgtttct gctgcgcgaa 660
cagcaccact tcgtcatccg gcagggaaga cggcaagtca tacaacgtac ggataccctg 720
cacatcgggt acggtttcaa tatcgaaagc caaaatcgta ttcatggcag taccttgcgt 780
tcaaaaacag acttgcgctt attgtgtcat taa 813

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<210> 2178  
<211> 270  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 2178  
Met Arg Phe Val Phe Cys Leu Gly Gly Glu Ile Val Ser Asp Pro Cys  
1 5 10 15  
Asp Phe His Leu Val Phe Val Arg Val Glu Ser Ala Ala Asp Gln Thr  
20 25 30  
Glu Thr Gln Ile His Gln Ile Arg Ile His Gly Ile Gly Phe Ala Ile  
35 40 45  
Ile Ala Asp Phe Leu Gln Arg Ala Arg Val Glu Arg Phe Pro His Phe  
50 55 60  
Ala Ala Val His Thr Gln Leu Ala Arg Lys Ala Ala Gln Phe Arg His  
65 70 75 80  
Ile Val Gln Arg His Ile Arg Pro Arg Leu Val Lys Arg Glu Gln Ile  
85 90 95  
His Gln Ile Ala Val Ala Leu Val Ile Thr Ala Asp Val Val Val Pro  
100 105 110  
Leu Glu Ile Ala Ala Val Ala Glu Ile Ala Val Ala Arg Ile Pro Ile  
115 120 125  
Ala Arg Gly Val Asp Ala Val Tyr Gln Gly Ala Val Met Gln Tyr Gly  
130 135 140  
Gln Val Glu Thr Ala Ala Val Pro Ala Asp Gln Leu Arg Arg Met Phe  
145 150 155 160  
Phe Asn Gln Phe Glu Lys Leu Gly Asn His Asp Phe Phe Ala Ile Val  
165 170 175  
His Leu Ala Asp Gly Ala Asp Met Asn Leu Val Leu Pro Pro Ala His  
180 185 190  
Thr Ala Gly Asn Arg His Asn Leu Met Glu Val Val Leu His Lys Ile  
195 200 205  
Ala Ala Gly Leu Cys Ala Ala Phe Leu Leu Arg Glu Gln His His Phe  
210 215 220  
Val Ile Arg Gln Gly Arg Arg Gln Val Ile Gln Arg Thr Asp Thr Leu  
225 230 235 240  
His Ile Gly Tyr Gly Phe Asn Ile Glu Ser Gln Asn Arg Ile His Gly  
245 250 255  
Ser Thr Leu His Ser Lys Thr Asp Leu Arg Leu Leu Cys His

260

265

270

&lt;210&gt; 2179

&lt;211&gt; 672

&lt;212&gt; DNA

<213> *Neisseria meningitidis*

&lt;400&gt; 2179

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atgcggtttt tccccggctt gtgcggtacag gtaattccgc atccgtttga tttccatttc 60
gtattcgtcc gcatccagcc tgccgctgac cagacagaaa cgcaggtaca tcagataagt 120
gtttgccgcg tcggtttcgc aataattgcg gatttccttc agcctgcccg tatggaatgc 180
ctcccaaacc ttgctgccgt ccatacccag cttgcccgga aaaccgcaca gtttcgccat 240
atcgtccagc ggcacgtttg ccctcggctg gtaaagcgcg agcaaatcca tcaaatcgca 300
gtggcgttgg tgataacggc tgatgtagtt gttccacttg aaatcgcggc tgcgccgaa 360
atcgccgtcg cccatatccc aatagcgcgc ggcgttgatg ccgtatatca gggagcggta 420
atgcagtacg ggcagatcga aaccgccgcc gttccaactg accagttgcg gcgtatgttt 480
ttcaatcaat tcgaaaaatt tagcaatgac cacttctcgc ccgtcatcca tctcgccgat 540
ggtgccgaca tgtactttat cctgccccca acgcatgcag cacgaaatcg ccacaacctg 600
atgaagatga tgctgcataa aatcgccgcc cgtctgagca cggcgtttgt gctgggcaat 660
cagcaccact tg                                     672

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&lt;210&gt; 2180

&lt;211&gt; 224

&lt;212&gt; PRT

<213> *Neisseria meningitidis*

&lt;400&gt; 2180

```

Met Arg Leu Phe Pro Gly Leu Cys Gly Gln Val Ile Pro His Pro Phe
 1             5             10             15

Asp Phe His Phe Val Phe Val Arg Ile Gln Pro Ala Ala Asp Gln Thr
          20             25             30

Glu Thr Gln Val His Gln Ile Ser Val Cys Arg Val Gly Phe Ala Ile
      35             40             45

Ile Ala Asp Phe Leu Gln Pro Ala Arg Met Glu Cys Leu Pro Asn Leu
      50             55             60

Ala Ala Val His Thr Gln Leu Ala Arg Lys Thr Ala Gln Phe Arg His
      65             70             75             80

Ile Val Gln Arg His Val Cys Pro Arg Leu Val Lys Arg Glu Gln Ile
          85             90             95

His Gln Ile Ala Val Ala Leu Val Ile Thr Ala Asp Val Val Val Pro
      100             105             110

Leu Glu Ile Ala Ala Val Ala Glu Ile Ala Val Ala His Ile Pro Ile
      115             120             125

Ala Arg Gly Val Asp Ala Val Tyr Gln Gly Ala Val Met Gln Tyr Gly
      130             135             140

```

Gln Ile Glu Thr Ala Ala Val Pro Thr Asp Gln Leu Arg Arg Met Phe  
 145 150 155 160

Phe Asn Gln Phe Glu Lys Phe Ser Asn Asp His Phe Leu Ala Val Ile  
 165 170 175

His Leu Ala Asp Gly Ala Asp Met Tyr Phe Ile Leu Pro Pro Thr His  
 180 185 190

Ala Ala Arg Asn Arg His Asn Leu Met Lys Met Met Leu His Lys Ile  
 195 200 205

Ala Ala Arg Leu Ser Thr Ala Phe Val Leu Gly Asn Gln His His Leu  
 210 215 220

<210> 2181  
 <211> 812  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2181  
 atgcggtttg tcttctgttt gggcggagag atagtttctg atccgcttga tttccatttc 60  
 gtattcgtct gcgtcgaatc tgccgctgac cagacagaaa cgcagatata tcagataggt 120  
 atttaccgca tcggtttcgc aataattgcg gatttccttc agcctgcccg cgtggaacgc 180  
 ctcccacacc ttgctgccgt ccatacccag cttgcccgga aaaccgcaca gtttcgccat 240  
 atcgtccaac ggcacattcg ccctcggctg gtaaagcgcg agcaaattca tcaaattcgca 300  
 atgacgttgg tggtagcggc tgatgtagtt gtccacttg aaatcgcggc tgcgcgcgaa 360  
 atcgccgtcg cccatatccc aatagcgcgc ggcgttgatg ccgtgtagca gcgaacggta 420  
 atgcagaacc ggcaggtcga aaccgcgcgc gttccaactg accagttgcg gcgtatgttt 480  
 ttcaatcaac tcgaaaaatt tggcgataac cacttctctg ccgtcatcca tctcgccgat 540  
 tgtaccgaca tggactttat cctgccccca acgcatgcag cagcaaatcg ccacaatctg 600  
 atgaagatga tgctgcataa aatccccacc cgtctgagca cggcggtttt gctgggcaaa 660  
 cagcaccact tcatcgtcgg gcagcgagga cggcaagtca tacagcgtac ggatacactg 720  
 cacatcggtt acggtttcaa tatcgaaagc caaaatcgtg gtcatgacag caccttgtat 780  
 ttaaaacaga cttgcgccta ttgtgtcatt aa 812

<210> 2182  
 <211> 269  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2182  
 Met Arg Phe Val Phe Cys Leu Gly Gly Glu Ile Val Ser Asp Pro Leu  
 1 5 10 15

Asp Phe His Phe Val Phe Val Cys Val Glu Ser Ala Ala Asp Gln Thr  
 20 25 30

Glu Thr Gln Ile His Gln Ile Gly Ile Tyr Arg Ile Gly Phe Ala Ile  
 35 40 45

Ile Ala Asp Phe Leu Gln Pro Ala Arg Val Glu Arg Leu Pro His Leu



50                      55                      60  
 Ala Ala Val His Thr Gln Leu Ala Arg Lys Thr Ala Gln Phe Arg His  
 65                      70                      75                      80  
 Ile Val Gln Arg His Ile Arg Pro Arg Leu Val Lys Arg Glu Gln Ile  
 85                      90                      95  
 His Gln Ile Ala Met Thr Leu Val Val Ala Ala Asp Val Val Val Pro  
 100                      105                      110  
 Leu Glu Ile Ala Ala Val Ala Glu Ile Ala Val Ala His Ile Pro Ile  
 115                      120                      125  
 Ala Arg Gly Val Asp Ala Val Gln Arg Thr Val Met Gln Asn Arg Gln  
 130                      135                      140  
 Val Glu Thr Ala Ala Val Pro Thr Asp Gln Leu Arg Arg Met Phe Phe  
 145                      150                      155                      160  
 Asn Gln Leu Glu Lys Phe Gly Asp Asn His Phe Leu Ala Val Ile His  
 165                      170                      175  
 Leu Ala Asp Cys Thr Asp Met Asp Phe Ile Leu Pro Pro Thr His Ala  
 180                      185                      190  
 Ala Arg Asn Arg His Asn Leu Met Lys Met Met Leu His Lys Ile Pro  
 195                      200                      205  
 Thr Arg Leu Ser Thr Ala Phe Leu Leu Gly Lys Gln His His Phe Ile  
 210                      215                      220  
 Val Gly Gln Arg Gly Arg Gln Val Ile Gln Arg Thr Asp Thr Leu His  
 225                      230                      235                      240  
 Ile Gly Tyr Gly Phe Asn Ile Glu Ser Gln Asn Arg Gly His Asp Ser  
 245                      250                      255  
 Thr Leu Tyr Leu Lys Xaa Asp Leu Arg Leu Leu Cys His  
 260                      265

<210> 2183

<211> 321

<212> DNA

<213> Neisseria gonorrhoeae

<400> 2183

atgcgcccga tcgttaaaaa acaccagccc gtaaaccgccc cacatatcgt ttgggaaatt 60  
 cggataatga aactgcatcg cgcgtttgtc ttccttgggc ggaaacgtcc ccatcatcat 120  
 gaccgcagcc ttcggcggca acacgggatc gaagggatgg gtttcgattt caagcagatt 180  
 ttcagacacg ttcaatcctc caacaggcaa agcggcagac agccggtttg caccaaaccg 240  
 ccaaacacgg caagccttca aacagcatta tcacgccttg ccgttttcgg ttacaatgcc 300  
 gacatcaaac ggatactgta a 321

<210> 2184

<211> 106  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 2184

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Met Arg Arg Ile Val Lys Lys His Gln Pro Val Asn Ala Pro His Ile
  1             5             10             15

Val Leu Glu Ile Arg Ile Met Lys Leu His Arg Ala Phe Val Phe Leu
      20             25             30

Gly Arg Lys Arg Pro His His His Asp Arg Ser Leu Arg Arg Gln His
      35             40             45

Gly Ile Glu Gly Met Gly Phe Asp Phe Lys Gln Ile Phe Arg His Val
      50             55             60

Gln Ser Ser Asn Arg Gln Ser Gly Arg Gln Pro Val Cys Thr Lys Pro
      65             70             75             80

Pro Asn Thr Ala Ser Leu Gln Thr Ala Leu Ser Arg Pro Ala Val Phe
      85             90             95

Gly Tyr Asn Ala Asp Ile Lys Arg Ile Leu
      100             105
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<210> 2185  
<211> 321  
<212> DNA  
<213> Neisseria meningitidis

<400> 2185

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atgcgcgcgca tcattaaaaa acaccagccc ataaacgcgc cacatatcgt tttggaaatt 60
cggataatga aactgcatcg cgcgtttgtc ttccttgggc ggaaacgtcc ccatacatcat 120
gacagcagcc ttcggcggca acacgggatc gaagggatgg gtttcgattt caagcagatt 180
ttcagacacg ttcaatcctc caacaggcaa aacggcagac agccgggttg caccaaaccg 240
ccaaacacgg caagccttca aacagcatta tcacgccttg ccgttttcgg ttacaatgcc 300
gacatcaaac ggatactgta a                                     321
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<210> 2186  
<211> 106  
<212> PRT  
<213> Neisseria meningitidis

<400> 2186

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Met Arg Arg Ile Ile Lys Lys His Gln Pro Ile Asn Ala Pro His Ile
  1             5             10             15

Val Leu Glu Ile Arg Ile Met Lys Leu His Arg Ala Phe Val Phe Leu
      20             25             30

Gly Arg Lys Arg Pro His His His Asp Ser Ser Leu Arg Arg Gln His
      35             40             45
```

Gly Ile Glu Gly Met Gly Phe Asp Phe Lys Gln Ile Phe Arg His Val  
50 55 60

Gln Ser Ser Asn Arg Gln Asn Gly Arg Gln Pro Val Cys Thr Lys Pro  
65 70 75 80

Pro Asn Thr Ala Ser Leu Gln Thr Ala Leu Ser Arg Pro Ala Val Phe  
85 90 95

Gly Tyr Asn Ala Asp Ile Lys Arg Ile Leu  
100 105

<210> 2187

<211> 321

<212> DNA

<213> Neisseria meningitidis

<400> 2187

atgcgccgca tcattaaaaa acaccagccc gtaaacgcgc cacatatcgt tttggaaatt 60  
cggataatga aactgcatcg cgcgtttgtc ttccttgggc ggaaacgtcc ccatcatcat 120  
gaccgcagcc ttcggcggca acacggaatc gaagggatgg gtttcgattt caagcagatt 180  
ttcagacacg ttcaatcctc caacaggcaa aacggcagac agcgggtttg caccaaaccg 240  
ccaaacacgg caagccttca aacagcatta tcacgccttg ccgttttcgg ttacaatgcc 300  
gacatcaaac ggatactgta a 321

<210> 2188

<211> 106

<212> PRT

<213> Neisseria meningitidis

<400> 2188

Met Arg Arg Ile Ile Lys Lys His Gln Pro Val Asn Ala Pro His Ile  
1 5 10 15

Val Leu Glu Ile Arg Ile Met Lys Leu His Arg Ala Phe Val Phe Leu  
20 25 30

Gly Arg Lys Arg Pro His His His Asp Arg Ser Leu Arg Arg Gln His  
35 40 45

Gly Ile Glu Gly Met Gly Phe Asp Phe Lys Gln Ile Phe Arg His Val  
50 55 60

Gln Ser Ser Asn Arg Gln Asn Gly Arg Gln Pro Val Cys Thr Lys Pro  
65 70 75 80

Pro Asn Thr Ala Ser Leu Gln Thr Ala Leu Ser Arg Pro Ala Val Phe  
85 90 95

Gly Tyr Asn Ala Asp Ile Lys Arg Ile Leu  
100 105

<210> 2189

<211> 456

<212> DNA  
<213> *Neisseria gonorrhoeae*

<400> 2189  
atgacttggt gcaggaactg cttggcgcgt tcgtgtttcg gggtggtgaa aaacgcttcc 60  
ggcgtttcgt cttcaaggat ttgcccttta tcgacgaaaa tcacgcggtc ggcaacttcg 120  
cgggcaaacc ccatttcgtg ggttacgcac atcatcgtca tgccgctttc cgccaagtct 180  
ttcatcactt tcaacacttc gccgaccatt tcggggtcga gtgcggaagt cggctcgtca 240  
aacagcatca cgcgcggctc catcgccagc ccgcgcgcaa tcgccacgcg ttgctgctgg 300  
ccgccggaaa gttgggaagg gaaggcgtct tttttgtgtg ccagtcgcac gcgttccaaa 360  
agctccattg cctttttctc cgcctgttcc gcattttgcc ccttaacctt catcggtgcg 420  
agggtgatgt tgtccaacac ggtcagggtc gggtag 456

<210> 2190  
<211> 151  
<212> PRT  
<213> *Neisseria gonorrhoeae*

<400> 2190  
Met Thr Cys Cys Arg Asn Cys Leu Ala Arg Ser Cys Phe Gly Leu Val  
1 5 10 15  
Lys Asn Ala Ser Gly Val Ser Ser Ser Arg Ile Cys Pro Leu Ser Thr  
20 25 30  
Lys Ile Thr Arg Ser Ala Thr Ser Arg Ala Asn Pro Ile Ser Trp Val  
35 40 45  
Thr His Ile Ile Val Met Pro Leu Ser Ala Lys Ser Phe Ile Thr Phe  
50 55 60  
Asn Thr Ser Pro Thr Ile Ser Gly Ser Ser Ala Glu Val Gly Ser Ser  
65 70 75 80  
Asn Ser Ile Thr Arg Gly Ser Ile Ala Ser Pro Arg Ala Ile Ala Thr  
85 90 95  
Arg Cys Cys Trp Pro Pro Glu Ser Trp Glu Gly Lys Ala Ser Phe Leu  
100 105 110  
Cys Ala Ser Pro Thr Arg Ser Lys Ser Ser Ile Ala Phe Phe Ser Ala  
115 120 125  
Cys Ser Ala Phe Cys Pro Leu Thr Phe Ile Gly Ala Arg Val Met Leu  
130 135 140  
Ser Asn Thr Val Arg Cys Gly  
145 150

<210> 2191  
<211> 456  
<212> DNA  
<213> *Neisseria meningitidis*

<400> 2191

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atgacctgtt gcaggaactg cttggcgcgt tcgtgtttcg ggttggtaaa aaacgcttcg 60
ggcgtttcgt cttcgaggat ttgcccttta tcgacgaaaa tcacgcggtc ggcaacttcg 120
cgggcaaacc ccatttcgtg ggttacgcac atcatcgtca tgccgctttc tgccaagtct 180
ttcatcactt tcaacacttc gccgaccatt tcggggtcga gtgcggaggt cggttcgtca 240
aacaacatta cgcgcggttc catcgccaaa ccgcgtgcaa tcgccacgcg ttgctgctgg 300
ccgccggaag gttgggaagg gaaggcgtct tttttgtgtg ccagtcgcac gcgttcctaa 360
agctccattg cctttttctc cgcctgttcc gcattttgcc ccttaacctt catcggtgcg 420
agggtaatgt tttccaacac ggtcagggtgc gggtag 456

```

<210> 2192  
 <211> 151  
 <212> PRT  
 <213> Neisseria meningitidis

```

<400> 2192
Met Thr Cys Cys Arg Asn Cys Leu Ala Arg Ser Cys Phe Gly Leu Val
  1              5              10              15

Lys Asn Ala Ser Gly Val Ser Ser Ser Arg Ile Cys Pro Leu Ser Thr
      20              25              30

Lys Ile Thr Arg Ser Ala Thr Ser Arg Ala Asn Pro Ile Ser Trp Val
      35              40              45

Thr His Ile Ile Val Met Pro Leu Ser Ala Lys Ser Phe Ile Thr Phe
      50              55              60

Asn Thr Ser Pro Thr Ile Ser Gly Ser Ser Ala Glu Val Gly Ser Ser
      65              70              75              80

Asn Asn Ile Thr Arg Gly Ser Ile Ala Lys Pro Arg Ala Ile Ala Thr
      85              90              95

Arg Cys Cys Trp Pro Pro Glu Ser Trp Glu Gly Lys Ala Ser Phe Leu
     100              105              110

Cys Ala Ser Pro Thr Arg Ser Lys Ser Ser Ile Ala Phe Phe Ser Ala
     115              120              125

Cys Ser Ala Phe Cys Pro Leu Thr Phe Ile Gly Ala Arg Val Met Phe
     130              135              140

Ser Asn Thr Val Arg Cys Gly
     145              150

```

<210> 2193  
 <211> 456  
 <212> DNA  
 <213> Neisseria meningitidis

```

<400> 2193
atgacctgtt gcaggaactg cttggcgcgt tcgtgtttcg ggttggtaaa aaacgcttcc 60
ggcgtttcgt cttcgaggat ttgcccttta tcgacgaaaa tcacgcggtc ggcaacttcg 120
cgggcaaacc ccatttcgtg ggttacgcac atcatcgtca taccgctttc cgccaagtct 180

```

ttcattcactt tcaacacttc gccgaccatt tcgggggtcga gtgcgggaggt cggttcgtca 240  
 aacaacatta cgcgcggttc catcgccaaa ccgcgtgcaa tcgccacgcg ttgctgctgg 300  
 ccgcgcgaaa gttgggaagg gaaggcgtct tttttgtgtg ccagtccgac gcgttccaaa 360  
 agttccatcg cttttttctc tgcctgttcc gcattttgac ctttaacctt catcggtgcg 420  
 agggtaatgt tttccaacac ggtcaggtgc gggtag 456

<210> 2194  
 <211> 150  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2194  
 Met Thr Cys Cys Arg Asn Cys Leu Ala Arg Ser Cys Phe Gly Leu Val  
 1 5 10 15  
 Lys Asn Ala Ser Gly Val Ser Ser Ser Arg Ile Cys Pro Leu Ser Thr  
 20 25 30  
 Lys Ile Thr Arg Ser Ala Thr Ser Arg Ala Asn Pro Ile Ser Trp Val  
 35 40 45  
 Thr His Ile Met Val Ile Pro Leu Ser Ala Lys Ser Phe Ile Thr Phe  
 50 55 60  
 Asn Thr Ser Pro Thr Ile Ser Gly Ser Ser Ala Glu Val Gly Ser Ser  
 65 70 75 80  
 Asn Asn Ile Thr Arg Gly Ser Ile Ala Lys Pro Arg Ala Ile Ala Thr  
 85 90 95  
 Arg Cys Cys Trp Pro Pro Glu Ser Trp Glu Gly Lys Ala Ser Phe Leu  
 100 105 110  
 Cys Ala Ser Pro Thr Arg Ser Lys Ser Ser Ile Ala Phe Phe Ser Ala  
 115 120 125  
 Cys Ser Ala Phe Pro Leu Thr Phe Ile Gly Ala Arg Val Met Phe Ser  
 130 135 140  
 Asn Thr Val Arg Cys Gly  
 145 150

<210> 2195  
 <211> 447  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 2195  
 atgatcagca gggtaacaat caaaacgcct ttcaatgcac cgaatacacc gcccaaaatg 60  
 cggtttgcaa agcccagacc gaccgccgaa actgcgccgg tcagcagcga acggagcatt 120  
 ttctggatca gacaggcaat gacgaacagg gaaatgaatg acagagccaa tgcaaacagg 180  
 cgggggttga acgaggcaaa ggcgaggtcg gcgaagggtg cggcaaaagag tttggcaaaa 240  
 aagaaggaaa ccaccatgc caccatcgaa cctgcttccg caatcacgcc gcgcatcggtg 300  
 gaaatgacga tgcaggcggc gatgacggcg gaggcgagga ggtcgggcaat ggggaggcta 360  
 ttcattcggtt acctggccgg cgatgccgtg cacgcgcagt ttgttcaaat cgcgttcggc 420

atcccttgcg tttttatagt tgcttga

447

<210> 2196

<211> 148

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 2196

Met Ile Ser Arg Val Thr Ile Lys Thr Pro Phe Asn Ala Pro Asn Thr  
1 5 10 15

Pro Pro Lys Met Arg Leu Ala Lys Pro Arg Pro Thr Ala Glu Thr Ala  
20 25 30

Pro Val Ser Ser Glu Arg Ser Ile Phe Trp Ile Arg Gln Ala Met Thr  
35 40 45

Asn Arg Glu Met Asn Asp Arg Ala Asn Ala Asn Arg Arg Gly Trp Asn  
50 55 60

Glu Ala Lys Ala Arg Ser Ala Lys Gly Ala Ala Lys Ser Leu Ala Lys  
65 70 75 80

Lys Lys Glu Thr Thr His Ala Thr Ile Glu Pro Ala Ser Ala Ile Thr  
85 90 95

Pro Arg Ile Val Glu Met Thr Met Gln Ala Ala Met Thr Ala Glu Ala  
100 105 110

Arg Arg Ser Ala Met Gly Arg Leu Phe Ile Arg Tyr Leu Ala Gly Asp  
115 120 125

Ala Val His Ala Gln Phe Val Gln Ile Ala Phe Gly Ile Pro Cys Val  
130 135 140

Phe Ile Val Ala  
145

<210> 2197

<211> 447

<212> DNA

<213> *Neisseria meningitidis*

<400> 2197

atgaccagca gggtaacaat caaaacgcct ttcaatgcac cgaatacggc gcccaaaatg 60  
cggttggcaa agcccaaacc gaccgccgaa actgcgctgg tcagcagcga acggagcatt 120  
ttctggatca gacaggcaat gacgaacagg gaaatgaacg acagagccaa tgcaaacagg 180  
cgggggttga acgaggcaaa ggcgaggctg gcgaaggagg cggcaaagag ttggcgaaa 240  
aagaaggaaa ccacccatgc cgccattgag cctgcctcgg caatcacgcc gcgcacgcgc 300  
gatagcacga tgcaggcggc gatgacggcg gagacgagga ggtcggcaat ggggaggcta 360  
ttcattcggtt acctgaccgg cgataccgtg tacgcgcaat ttgttcaaat cgcgttcggc 420  
atcccttgcg tttttatagt tgcttga 447

<210> 2198

<211> 148  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2198  
 Met Thr Ser Arg Val Thr Ile Lys Thr Pro Phe Asn Ala Pro Asn Thr  
   1                  5                  10                  15  
 Pro Pro Lys Met Arg Leu Ala Lys Pro Lys Pro Thr Ala Glu Thr Ala  
                   20                  25                  30  
 Leu Val Ser Ser Glu Arg Ser Ile Phe Trp Ile Arg Gln Ala Met Thr  
           35                  40                  45  
 Asn Arg Glu Met Asn Asp Arg Ala Asn Ala Asn Arg Arg Gly Trp Asn  
       50                  55                  60  
 Glu Ala Lys Ala Arg Ser Ala Lys Glu Ala Ala Lys Ser Leu Ala Lys  
   65                  70                  75                  80  
 Lys Lys Glu Thr Thr His Ala Ala Ile Glu Pro Ala Ser Ala Ile Thr  
                   85                  90                  95  
 Pro Arg Ile Ala Asp Ser Thr Met Gln Ala Ala Met Thr Ala Glu Thr  
       100                  105                  110  
 Arg Arg Ser Ala Met Gly Arg Leu Phe Ile Arg Tyr Leu Thr Gly Asp  
       115                  120                  125  
 Thr Val Tyr Ala Gln Phe Val Gln Ile Ala Phe Gly Ile Pro Cys Val  
       130                  135                  140  
 Phe Ile Val Ala  
 145

<210> 2199  
 <211> 447  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2199  
 atgaccagca gggtaataat caaaatgcct ttcaatgcac cgaatacgcg gcccaaaatg 60  
 cggttggaag agcccaaacc gaccgccgaa actgccccgg tcagcagcga gcggagtatt 120  
 ttctggatca gacaggcaat gacgaatagg gaaatgaacg acagagccaa tgcaaacagg 180  
 cgggggttga acgatgcaaa ggcgatgtcg gcgaagggtg cggcaaagag tttggcgaaa 240  
 aaaaaggcaa ccacccatgc cgccattgag ccagcctccg caatcacgcc gcgcatcgcg 300  
 gatagcacga tgcaggcggc gatgatggcg gagacgagga ggtcggcaac ggggagggtta 360  
 ttcattcggt acctgaccgg cgataccgtg tacgcgcaat ttgttcaaat cgcgttcggc 420  
 atcccttgcg tttttatagt tgcttga 447

<210> 2200  
 <211> 148  
 <212> PRT  
 <213> Neisseria meningitidis



<400> 2200

Met Thr Ser Arg Val Ile Ile Lys Met Pro Phe Asn Ala Pro Asn Thr  
1 5 10 15  
Pro Pro Lys Met Arg Leu Ala Lys Pro Lys Pro Thr Ala Glu Thr Ala  
20 25 30  
Pro Val Ser Ser Glu Arg Ser Ile Phe Trp Ile Arg Gln Ala Met Thr  
35 40 45  
Asn Arg Glu Met Asn Asp Arg Ala Asn Ala Asn Arg Arg Gly Trp Asn  
50 55 60  
Asp Ala Lys Ala Met Ser Ala Lys Gly Ala Ala Lys Ser Leu Ala Lys  
65 70 75 80  
Lys Lys Ala Thr Thr His Ala Ala Ile Glu Pro Ala Ser Ala Ile Thr  
85 90 95  
Pro Arg Ile Ala Asp Ser Thr Met Gln Ala Ala Met Met Ala Glu Thr  
100 105 110  
Arg Arg Ser Ala Thr Gly Arg Leu Phe Ile Arg Tyr Leu Thr Gly Asp  
115 120 125  
Thr Val Tyr Ala Gln Phe Val Gln Ile Ala Phe Gly Ile Pro Cys Val  
130 135 140  
Phe Ile Val Ala  
145

<210> 2201

<211> 627

<212> DNA

<213> Neisseria gonorrhoeae

<400> 2201

atgaggaaaa tccgcaccaa aatctgcggc atcaccacac cggaagacgc actgtatgcc 60  
gccacgcgcg gcgcagacgc attgggactg gttttttacc cccaaagccc ccgcgctatc 120  
gacatcatta aagcacaaaa aatcgccgcc gcaactgccgc cgtttgtcag cgttgtcgcc 180  
cttttcgtca acgaaagcgc gcaaaacatc cgccgcaccc ttgccgaagt gccgatacac 240  
atcatccaat tccacggcga cgaagacgat gcattctgcc ggcagttcga ccgcccctat 300  
attaaagcca ttcgtgttca gacggcatca gacatccgaa acgcgcgcac gcgcttcccc 360  
aacgctcagg cactgctggt cgatgcctat cacccttcgg aatacggcgg caccggacac 420  
cgcttcgact ggacgctggt ggcggaatat tcgggcaagc cgtgggtgct tgccggcggg 480  
ctgacccctg aaaacgtcgg cgaagccgtc cgcacacccg gagcggaagc ggtcgacgta 540  
tccggcgggc tggaagcgtc taaaggcaaa aaagaccccc ccaaagtcgc cgcctttatc 600  
gcaaccgccca accgcctatc ccgttaa 627

<210> 2202

<211> 208

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2202

Met	Arg	Lys	Ile	Arg	Thr	Lys	Ile	Cys	Gly	Ile	Thr	Thr	Pro	Glu	Asp	
1				5					10					15		
Ala	Leu	Tyr	Ala	Ala	His	Ala	Gly	Ala	Asp	Ala	Leu	Gly	Leu	Val	Phe	
			20					25					30			
Tyr	Pro	Gln	Ser	Pro	Arg	Ala	Ile	Asp	Ile	Ile	Lys	Ala	Gln	Lys	Ile	
		35					40					45				
Ala	Ala	Ala	Leu	Pro	Pro	Phe	Val	Ser	Val	Val	Ala	Leu	Phe	Val	Asn	
		50				55					60					
Glu	Ser	Ala	Gln	Asn	Ile	Arg	Arg	Ile	Leu	Ala	Glu	Val	Pro	Ile	His	
65					70					75					80	
Ile	Ile	Gln	Phe	His	Gly	Asp	Glu	Asp	Asp	Ala	Phe	Cys	Arg	Gln	Phe	
				85					90					95		
Asp	Arg	Pro	Tyr	Ile	Lys	Ala	Ile	Arg	Val	Gln	Thr	Ala	Ser	Asp	Ile	
		100						105					110			
Arg	Asn	Ala	Ala	Thr	Arg	Phe	Pro	Asn	Ala	Gln	Ala	Leu	Leu	Phe	Asp	
		115					120					125				
Ala	Tyr	His	Pro	Ser	Glu	Tyr	Gly	Gly	Thr	Gly	His	Arg	Phe	Asp	Trp	
	130						135				140					
Thr	Leu	Leu	Ala	Glu	Tyr	Ser	Gly	Lys	Pro	Trp	Val	Leu	Ala	Gly	Gly	
145					150					155					160	
Leu	Thr	Pro	Glu	Asn	Val	Gly	Glu	Ala	Val	Arg	Ile	Thr	Gly	Ala	Glu	
				165					170					175		
Ala	Val	Asp	Val	Ser	Gly	Gly	Val	Glu	Ala	Ser	Lys	Gly	Lys	Lys	Asp	
		180						185					190			
Pro	Ala	Lys	Val	Ala	Ala	Phe	Ile	Ala	Thr	Ala	Asn	Arg	Leu	Ser	Arg	
		195					200					205				

<210> 2203

<211> 627

<212> DNA

<213> Neisseria meningitidis

<400> 2203

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atgaggaaaaa tccgcaccaa aatctgcggc atcaccacac cggaagacgc agctgccgcc 60
gcagcggcag gtgcggatgc cgtcgggctg gtctttttcc aaggcagcag ccgggcccgtc 120
gatattgccc gcgccaaaaa aatcacccgc gcaactgccgc cgtttgtcag cgttgctgcc 180
cttttcgtca acgaaagcgc gcaaaacatc cgccgcatcc ttgccgaagt gccgatacac 240
atcatccaat tccacggcga cgaagacgac gcattctgcc gccagttcca ccgccctat 300
atcaaagcca ttcgtgttca gacggcatca gacatccgaa acgccgccac gcgcttcccc 360
gacgctcagg cactgctgtt cgatgcctac catccttcgg aatacggcgg caccggaaac 420
cgcttcgact ggacgctgct ggcggaatat tcgggcaaac cgtgggtgct tgccggcggg 480

```

ctgacccctg aaaacgtcgg cgaagccgtc cgcattcaccg gagcgggaatc ggtcggatgta 540  
 tccggcggtg tggaagcgtc taaaggcaaa aaagatgccg ccaaagtcgc cgcctttatc 600  
 gcaaccgcca accgcctatc ccgttaa 627

<210> 2204  
 <211> 208  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2204  
 Met Arg Lys Ile Arg Thr Lys Ile Cys Gly Ile Thr Thr Pro Glu Asp  
   1                  5                  10                  15  
 Ala Ala Ala Ala Ala Ala Ala Gly Ala Asp Ala Val Gly Leu Val Phe  
           20                  25                  30  
 Phe Gln Gly Ser Ser Arg Ala Val Asp Ile Ala Arg Ala Lys Lys Ile  
           35                  40                  45  
 Thr Ala Ala Leu Pro Pro Phe Val Ser Val Val Ala Leu Phe Val Asn  
       50                  55                  60  
 Glu Ser Ala Gln Asn Ile Arg Arg Ile Leu Ala Glu Val Pro Ile His  
   65                  70                  75                  80  
 Ile Ile Gln Phe His Gly Asp Glu Asp Asp Ala Phe Cys Arg Gln Phe  
                   85                  90                  95  
 His Arg Pro Tyr Ile Lys Ala Ile Arg Val Gln Thr Ala Ser Asp Ile  
           100                  105                  110  
 Arg Asn Ala Ala Thr Arg Phe Pro Asp Ala Gln Ala Leu Leu Phe Asp  
       115                  120                  125  
 Ala Tyr His Pro Ser Glu Tyr Gly Gly Thr Gly Asn Arg Phe Asp Trp  
   130                  135                  140  
 Thr Leu Leu Ala Glu Tyr Ser Gly Lys Pro Trp Val Leu Ala Gly Gly  
  145                  150                  155                  160  
 Leu Thr Pro Glu Asn Val Gly Glu Ala Val Arg Ile Thr Gly Ala Glu  
           165                  170                  175  
 Ser Val Asp Val Ser Gly Gly Val Glu Ala Ser Lys Gly Lys Lys Asp  
       180                  185                  190  
 Ala Ala Lys Val Ala Ala Phe Ile Ala Thr Ala Asn Arg Leu Ser Arg  
       195                  200                  205

<210> 2205  
 <211> 627  
 <212> DNA

<213> Neisseria meningitidis

<400> 2205

```

atgaggaaaaa tccgcaccaa aatctgcggc atcaccacac cggaagacgc actgtatgcc 60
gccacgccc ggcgagacgc attgggactg gttttttacc cccaaagccc ccgcgctgtc 120
gacatcatta aagcacaaaa aatcaccgcc gcactgccgc cgtttgtcag cgttgtcgcc 180
cttttcgtca acgaaagcgc gcaaaacatc cgccgcatcc ttgccgaagt accgatacac 240
atcatccaat tccacggcga cgaagacgac gcattctgcc gccagttcca ccgcccctat 300
atcaaggcca ttcgtgttca gacggcatca gacatccgaa acgcccgcga ccgcttcccc 360
gacgctcagg cactgctgtt cgatgcctac catccttcgg aatacggcgg caccggacac 420
cgcttcgact ggacgctgtt ggcggaatat tcgggcaaac cgtgggtgct tgccggcggg 480
ctgacccttg aaaacgtcga cgaagccatc cgcatacccg gagcggaagc ggtcgaatga 540
tccggcggcg tggaagcgtc taaaggcaaa aaagaccag ccaaagttgc cgcctttatc 600
gcaaccgcca accgcctatc ccgttaa 627

```

<210> 2206

<211> 208

<212> PRT

<213> Neisseria meningitidis

<400> 2206

```

Met Arg Lys Ile Arg Thr Lys Ile Cys Gly Ile Thr Thr Pro Glu Asp
  1             5             10             15

```

```

Ala Leu Tyr Ala Ala His Ala Gly Ala Asp Ala Leu Gly Leu Val Phe
          20             25             30

```

```

Tyr Pro Gln Ser Pro Arg Ala Val Asp Ile Ile Lys Ala Gln Lys Ile
          35             40             45

```

```

Thr Ala Ala Leu Pro Pro Phe Val Ser Val Val Ala Leu Phe Val Asn
          50             55             60

```

```

Glu Ser Ala Gln Asn Ile Arg Arg Ile Leu Ala Glu Val Pro Ile His
          65             70             75             80

```

```

Ile Ile Gln Phe His Gly Asp Glu Asp Asp Ala Phe Cys Arg Gln Phe
          85             90             95

```

```

His Arg Pro Tyr Ile Lys Ala Ile Arg Val Gln Thr Ala Ser Asp Ile
          100            105            110

```

```

Arg Asn Ala Ala Asp Arg Phe Pro Asp Ala Gln Ala Leu Leu Phe Asp
          115            120            125

```

```

Ala Tyr His Pro Ser Glu Tyr Gly Gly Thr Gly His Arg Phe Asp Trp
          130            135            140

```

```

Thr Leu Leu Ala Glu Tyr Ser Gly Lys Pro Trp Val Leu Ala Gly Gly
          145            150            155            160

```

```

Leu Thr Pro Glu Asn Val Asp Glu Ala Ile Arg Ile Thr Gly Ala Glu
          165            170            175

```

```

Ala Val Asp Val Ser Gly Gly Val Glu Ala Ser Lys Gly Lys Lys Asp
          180            185            190

```

Pro Ala Lys Val Ala Ala Phe Ile Ala Thr Ala Asn Arg Leu Ser Arg  
 195 200 205

<210> 2207  
 <211> 924  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 2207  
 atggatattg aaaccttctt tgcaggggaa cgcgcgcgcg gcggataccg ttgcgggttc 60  
 gtggcgattg tcggtcggtc gaacgtgggc aaatcaacgc tgatgaacca tctcatcggg 120  
 cagaaaaatca gtattaccag caaaaaggcg cagacgacgc gcaaccgcgt aacggggatt 180  
 tataccgacg ataccgcgca gttcgtgttt gtcgatacgc cgggctttca aaccgaccac 240  
 cgcaacgcgc tcaacgacag gctgaatcaa aatgttaccg aggcgctcgg cgggtgtggat 300  
 gtggtgtgtt tcgtcgtgga ggcgatgcgc cttaccgatg ccgaccgcgt cgtgttgaaa 360  
 caactgcccc agcacacgcc ggtcatttta gtgatcaaca aaatcgacaa ggacaaggcg 420  
 aaagaccgtt acgcgctgga ggcgtttgtt gcccaagtgc gcgccgaatt tgaatttgcg 480  
 gcggcggagg cggtcagtgc gaaacacggt ttgcggattg ccaacctgtt ggagctgctc 540  
 aagccgtatc tgcccgaag cgtaccgatg tatcccgaag acatggttac ggacaaatcg 600  
 gcgcgttttt tggcgatgga aatcgtgcgt gaaaaactct tccgctattt gggcgaggag 660  
 ctgccttatg cgatgaacgt cgaagtggag cagtttgaag agggagacgg tttgaaccgc 720  
 atctacatcg ccgttttggg cgacaaagaa agccaaaagg cgattttgat cggtaaaggc 780  
 ggggagcgtt tgaaaaaaat ttccaccgaa gcgcggctgg atatggaaaa actgtttgat 840  
 aacaaagtat ttttgaaggt ctgggtcaaa gtcaaatacc gttgggcaga cgacattcgc 900  
 ttcctgcgcg agctgggttt gtag 924

<210> 2208  
 <211> 307  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 2208  
 Met Asp Ile Glu Thr Phe Leu Ala Gly Glu Arg Ala Ala Gly Gly Tyr  
 1 5 10 15  
 Arg Cys Gly Phe Val Ala Ile Val Gly Arg Pro Asn Val Gly Lys Ser  
 20 25 30  
 Thr Leu Met Asn His Leu Ile Gly Gln Lys Ile Ser Ile Thr Ser Lys  
 35 40 45  
 Lys Ala Gln Thr Thr Arg Asn Arg Val Thr Gly Ile Tyr Thr Asp Asp  
 50 55 60  
 Thr Ala Gln Phe Val Phe Val Asp Thr Pro Gly Phe Gln Thr Asp His  
 65 70 75 80  
 Arg Asn Ala Leu Asn Asp Arg Leu Asn Gln Asn Val Thr Glu Ala Leu  
 85 90 95  
 Gly Gly Val Asp Val Val Val Phe Val Val Glu Ala Met Arg Leu Thr

100	105	110
Asp Ala Asp Arg Val Val Leu Lys Gln Leu Pro Lys His Thr Pro Val		
115	120	125
Ile Leu Val Ile Asn Lys Ile Asp Lys Asp Lys Ala Lys Asp Arg Tyr		
130	135	140
Ala Leu Glu Ala Phe Val Ala Gln Val Arg Ala Glu Phe Glu Phe Ala		
145	150	155
Ala Ala Glu Ala Val Ser Ala Lys His Gly Leu Arg Ile Ala Asn Leu		
	165	170
Leu Glu Leu Leu Lys Pro Tyr Leu Pro Glu Ser Val Pro Met Tyr Pro		
	180	185
Glu Asp Met Val Thr Asp Lys Ser Ala Arg Phe Leu Ala Met Glu Ile		
	195	200
Val Arg Glu Lys Leu Phe Arg Tyr Leu Gly Glu Glu Leu Pro Tyr Ala		
	210	215
Met Asn Val Glu Val Glu Gln Phe Glu Glu Gly Asp Gly Leu Asn Arg		
225	230	235
Ile Tyr Ile Ala Val Leu Val Asp Lys Glu Ser Gln Lys Ala Ile Leu		
	245	250
Ile Gly Lys Gly Gly Glu Arg Leu Lys Lys Ile Ser Thr Glu Ala Arg		
	260	265
Leu Asp Met Glu Lys Leu Phe Asp Asn Lys Val Phe Leu Lys Val Trp		
	275	280
Val Lys Val Lys Ser Gly Trp Ala Asp Asp Ile Arg Phe Leu Arg Glu		
	290	295
Leu Gly Leu		
305		

<210> 2209

<211> 924

<212> DNA

<213> *Neisseria meningitidis*

<400> 2209

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atggatattg aaaccttcct tgcaggggaa cgcgccgcgc gccgataccg ttgcggcttc 60
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cagaaaatca gtattaccag caaaaaggcg cagacgacgc gcaaccgcgt aacggggatt 180
tataccgacg ataccgcgca gttcgtgttt gtcgatacgc ccggttttca aaccgaccac 240
cgcaacgcgc tcaacgacag gctgaatcaa aatgttaccg aggcgctcgg cggcgtggat 300
gtggtggttt tcgtcgtgga ggcgatgcgc tttaccgatg ccgaccgcgt cgtgttgaaa 360
caactgccca agcacacgcc ggtcatttta gtggtcaaca aaatcgacaa ggacaaggcg 420
aaagaccgtt acgcgctgga ggcgtttggt gcccaagtgc gcgccgaatt tgaatttgcg 480
gcgcgcgagg cggtcagcgc gaaacacgga ttgcggattg ccaacctgtt ggagctgatt 540

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aagccgtatc tgcccgaag cgtgccgatg tatcccgaag atatgggttac ggacaaatcg 600  
gcgcgttttt tggcgatgga aatcgtgcgt gaaaaattgt tccgctatctt gggcgaggaa 660  
ttgccttatg cgtgaaacgt cgaagtggag cagtttgaag aggaagacgg tttgaaccgc 720  
atctatatcg ccgttttggg cgataaggaa agccaaaagg caattttaat cggtaaaggc 780  
ggagaacggt tgaagaaaat ttccaccgaa gcgcgggttg atatggaaaa actgtttgat 840  
accaaagtat ttttgaagg ctgggtcaaa gtcaaaccg gttgggcgga cgacatccgc 900  
ttcctgcgcg agctggggtt gtag 924

<210> 2210  
<211> 307  
<212> PRT  
<213> Neisseria meningitidis

<400> 2210  
Met Asp Ile Glu Thr Phe Leu Ala Gly Glu Arg Ala Ala Gly Gly Tyr  
1 5 10 15  
Arg Cys Gly Phe Val Ala Ile Val Gly Arg Pro Asn Val Gly Lys Ser  
20 25 30  
Thr Leu Met Asn His Leu Ile Gly Gln Lys Ile Ser Ile Thr Ser Lys  
35 40 45  
Lys Ala Gln Thr Thr Arg Asn Arg Val Thr Gly Ile Tyr Thr Asp Asp  
50 55 60  
Thr Ala Gln Phe Val Phe Val Asp Thr Pro Gly Phe Gln Thr Asp His  
65 70 75 80  
Arg Asn Ala Leu Asn Asp Arg Leu Asn Gln Asn Val Thr Glu Ala Leu  
85 90 95  
Gly Gly Val Asp Val Val Val Phe Val Val Glu Ala Met Arg Phe Thr  
100 105 110  
Asp Ala Asp Arg Val Val Leu Lys Gln Leu Pro Lys His Thr Pro Val  
115 120 125  
Ile Leu Val Val Asn Lys Ile Asp Lys Asp Lys Ala Lys Asp Arg Tyr  
130 135 140  
Ala Leu Glu Ala Phe Val Ala Gln Val Arg Ala Glu Phe Glu Phe Ala  
145 150 155 160  
Ala Ala Glu Ala Val Ser Ala Lys His Gly Leu Arg Ile Ala Asn Leu  
165 170 175  
Leu Glu Leu Ile Lys Pro Tyr Leu Pro Glu Ser Val Pro Met Tyr Pro  
180 185 190  
Glu Asp Met Val Thr Asp Lys Ser Ala Arg Phe Leu Ala Met Glu Ile  
195 200 205  
Val Arg Glu Lys Leu Phe Arg Tyr Leu Gly Glu Glu Leu Pro Tyr Ala  
210 215 220

Met Asn Val Glu Val Glu Gln Phe Glu Glu Glu Asp Gly Leu Asn Arg  
225 230 235 240

Ile Tyr Ile Ala Val Leu Val Asp Lys Glu Ser Gln Lys Ala Ile Leu  
245 250 255

Ile Gly Lys Gly Gly Glu Arg Leu Lys Lys Ile Ser Thr Glu Ala Arg  
260 265 270

Leu Asp Met Glu Lys Leu Phe Asp Thr Lys Val Phe Leu Lys Val Trp  
275 280 285

Val Lys Val Lys Ser Gly Trp Ala Asp Asp Ile Arg Phe Leu Arg Glu  
290 295 300

Leu Gly Leu  
305

<210> 2211

<211> 924

<212> DNA

<213> Neisseria meningitidis

<400> 2211

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atggatattg aaaccttcct tgcaggggaa cgcgccgcgc acggataccg ttgcgggttc 60
gtagcgattg tcggccgtcc gaacgtgggc aaatcaacgc tgatgaatca tctcatcggt 120
cagaaaatca gtattaccag caaaaaggcg cagacgacgc gcaaccgcgt aacggggatt 180
tataccgacg ataccgcgca gtttgtgttt gtcgatacgc ccggttttca aaccgaccac 240
cgcaacgcgc tcaacgaccg tttgaatcaa aacgttacgc aggcactcgc cggcgtggat 300
gtggtggttt tcgtcgtgga agegatgcgt ttaccgatg ccgaccgcgt cgtgttgaaa 360
caactgcccc agcacacgcc ggtcatttta gtggtcaaca aaatcgataa ggacaaggcg 420
aaagaccgtt acgcgctgga ggcgtttgtt gcccagggtc gcgccgaatt tgaatttgcg 480
gcggcggagg cgtcagcgc gaaacacgga ttgcggattg ccaacctgtt ggagctgatt 540
aagccgtatc tgcccgaag cgtgccgatg tatccgaag atatggttac ggacaaatcg 600
gcgcgttttt tagcgatgga aatcgtgcgt gaaaaattgt tccgctattt gggcgaggaa 660
ttgccttatg cgatgaacgt cgaagtggag cagtttgaag aggaagacgg tttgaaccgc 720
atctatatcg ccgttttggg cgataaggaa agccaaaagg cgattttaat cggcaaaggc 780
ggggagcgtt tgaagaaaat ttccaccgaa gcgcggttgg atatggaaaa actgtttgat 840
accaaagtat ttttgaaggt ctgggtcaaa gtcaaaccgc gttgggcgga cgacatccgc 900
ttcctgcgcg agctgggttt gtag 924
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<210> 2212

<211> 307

<212> PRT

<213> Neisseria meningitidis

<400> 2212

Met Asp Ile Glu Thr Phe Leu Ala Gly Glu Arg Ala Ala Asp Gly Tyr  
1 5 10 15

Arg Cys Gly Phe Val Ala Ile Val Gly Arg Pro Asn Val Gly Lys Ser  
20 25 30

Thr Leu Met Asn His Leu Ile Gly Gln Lys Ile Ser Ile Thr Ser Lys  
35 40 45



Lys Ala Gln Thr Thr Arg Asn Arg Val Thr Gly Ile Tyr Thr Asp Asp  
50 55 60

Thr Ala Gln Phe Val Phe Val Asp Thr Pro Gly Phe Gln Thr Asp His  
65 70 75 80

Arg Asn Ala Leu Asn Asp Arg Leu Asn Gln Asn Val Thr Glu Ala Leu  
85 90 95

Gly Gly Val Asp Val Val Val Phe Val Val Glu Ala Met Arg Phe Thr  
100 105 110

Asp Ala Asp Arg Val Val Leu Lys Gln Leu Pro Lys His Thr Pro Val  
115 120 125

Ile Leu Val Val Asn Lys Ile Asp Lys Asp Lys Ala Lys Asp Arg Tyr  
130 135 140

Ala Leu Glu Ala Phe Val Ala Gln Val Arg Ala Glu Phe Glu Phe Ala  
145 150 155 160

Ala Ala Glu Ala Val Ser Ala Lys His Gly Leu Arg Ile Ala Asn Leu  
165 170 175

Leu Glu Leu Ile Lys Pro Tyr Leu Pro Glu Ser Val Pro Met Tyr Pro  
180 185 190

Glu Asp Met Val Thr Asp Lys Ser Ala Arg Phe Leu Ala Met Glu Ile  
195 200 205

Val Arg Glu Lys Leu Phe Arg Tyr Leu Gly Glu Glu Leu Pro Tyr Ala  
210 215 220

Met Asn Val Glu Val Glu Gln Phe Glu Glu Glu Asp Gly Leu Asn Arg  
225 230 235 240

Ile Tyr Ile Ala Val Leu Val Asp Lys Glu Ser Gln Lys Ala Ile Leu  
245 250 255

Ile Gly Lys Gly Gly Glu Arg Leu Lys Lys Ile Ser Thr Glu Ala Arg  
260 265 270

Leu Asp Met Glu Lys Leu Phe Asp Thr Lys Val Phe Leu Lys Val Trp  
275 280 285

Val Lys Val Lys Ser Gly Trp Ala Asp Asp Ile Arg Phe Leu Arg Glu  
290 295 300

Leu Gly Leu  
305

<210> 2213  
<211> 426  
<212> DNA

<213> Neisseria gonorrhoeae

<400> 2213

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atgaaaacag cccgccgccg ttcccgcgag cttgccgtac aagccgttta ccaatccctt 60
atcaaccgca ccgccgcgcc cgaaattgct aaaaacatcc gcgaaatgtc cgactttgcc 120
aaagcggacg aagaattggt caacaaactc ttcttcggca cacaaaccaa tgcagcggac 180
tacatccaaa aaatccgccc gctgctcgac agggacgaaa aagacctcaa ccccatcgaa 240
cgcgccgttt tgctgaccgc ctgccacgag ctttccgcta tgcccgaaac gccctacccc 300
gtcattatca acgaagccat cgaagttacc aaaaccttcg gcggcacgga cgggcacaaa 360
ttcgtcaacg gcatcctcga caaactcgcc gcccaaatcc gccagacga gcccaaacgc 420
cgttga                                           426
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<210> 2214

<211> 141

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2214

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Met Lys Thr Ala Arg Arg Arg Ser Arg Glu Leu Ala Val Gln Ala Val
  1              5              10              15

Tyr Gln Ser Leu Ile Asn Arg Thr Ala Ala Pro Glu Ile Ala Lys Asn
      20              25              30

Ile Arg Glu Met Ser Asp Phe Ala Lys Ala Asp Glu Glu Leu Phe Asn
      35              40              45

Lys Leu Phe Phe Gly Thr Gln Thr Asn Ala Ala Asp Tyr Ile Gln Lys
      50              55              60

Ile Arg Pro Leu Leu Asp Arg Asp Glu Lys Asp Leu Asn Pro Ile Glu
      65              70              75              80

Arg Ala Val Leu Leu Thr Ala Cys His Glu Leu Ser Ala Met Pro Glu
      85              90              95

Thr Pro Tyr Pro Val Ile Ile Asn Glu Ala Ile Glu Val Thr Lys Thr
      100             105             110

Phe Gly Gly Thr Asp Gly His Lys Phe Val Asn Gly Ile Leu Asp Lys
      115             120             125

Leu Ala Ala Gln Ile Arg Pro Asp Glu Pro Lys Arg Arg
      130             135             140
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<210> 2215

<211> 426

<212> DNA

<213> Neisseria meningitidis

<400> 2215

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atgaaaacag cccgccgccg ttcccgcgag cttgccgtac aagccgttta ccaatccctt 60
atcaaccgca ccgccgcgcc cgaaattgct aaaaacatcc gcgaaatgtc cgactttgcc 120
aaggcagacg aagaattggt caacaaactt ttcttcggca cgcaaaccaa tgcggcagag 180
tatatccgac aaatccgccc gctacttgac agggacgaaa aagacctcaa ccccatcgaa 240
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cgcgccggttt tgctgaccgc ctgccacgag ctgtccgcca tgcccgaac gccctacccc 300  
gtcattatca acgaagccat cgaagttacc aaaaccttcg gcggcacgga cgggcacaaa 360  
ttcgtcaacg gcatcctcga caaactcgcc gcccaaattcc gcccgcacga gcccaaacgc 420  
cgttga 426

<210> 2216

<211> 141

<212> PRT

<213> Neisseria meningitidis

<400> 2216

Met Lys Thr Ala Arg Arg Arg Ser Arg Glu Leu Ala Val Gln Ala Val  
1 5 10 15  
Tyr Gln Ser Leu Ile Asn Arg Thr Ala Ala Pro Glu Ile Ala Lys Asn  
20 25 30  
Ile Arg Glu Met Ser Asp Phe Ala Lys Ala Asp Glu Glu Leu Phe Asn  
35 40 45  
Lys Leu Phe Phe Gly Thr Gln Thr Asn Ala Ala Glu Tyr Ile Arg Gln  
50 55 60  
Ile Arg Pro Leu Leu Asp Arg Asp Glu Lys Asp Leu Asn Pro Ile Glu  
65 70 75 80  
Arg Ala Val Leu Leu Thr Ala Cys His Glu Leu Ser Ala Met Pro Glu  
85 90 95  
Thr Pro Tyr Pro Val Ile Ile Asn Glu Ala Ile Glu Val Thr Lys Thr  
100 105 110  
Phe Gly Gly Thr Asp Gly His Lys Phe Val Asn Gly Ile Leu Asp Lys  
115 120 125  
Leu Ala Ala Gln Ile Arg Pro Asp Glu Pro Lys Arg Arg  
130 135 140

<210> 2217

<211> 426

<212> DNA

<213> Neisseria meningitidis

<400> 2217

atgaaaacag cccgccgccg ttcccgcgag cttgccgtac aagccgttta ccaatccctt 60  
atcaaccgca ccgccgcgcc cgagattgct aaaaacatcc gcgaaatgcc cgactttgcc 120  
aaggcagacg aagaattggt caacaaactt ttcttcggca cgcaaaccac tgccgcagag 180  
tacatccgac aaatccgccc cctgctcgac cgcgacgaaa aagacctcaa ccccatcgaa 240  
cgcgccgtcc tgctgaccgc ctgccacgag ctgtccgcca tgcccgaac gccctacccc 300  
gtcatcatca acgaagccat cgaagtaacc aaaaccttcg gcggcacgga cgggcacaaa 360  
ttcgtcaacg gcatcctcga caaactcgcc gcccaaattcc gtcccgcacga gcccaaacgc 420  
cgttga 426

<210> 2218

<211> 141  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 2218  
 Met Lys Thr Ala Arg Arg Arg Ser Arg Glu Leu Ala Val Gln Ala Val  
     1                    5                    10                    15  
 Tyr Gln Ser Leu Ile Asn Arg Thr Ala Ala Pro Glu Ile Ala Lys Asn  
             20                    25                    30  
 Ile Arg Glu Met Pro Asp Phe Ala Lys Ala Asp Glu Glu Leu Phe Asn  
             35                    40                    45  
 Lys Leu Phe Phe Gly Thr Gln Thr Asn Ala Ala Glu Tyr Ile Arg Gln  
             50                    55                    60  
 Ile Arg Pro Leu Leu Asp Arg Asp Glu Lys Asp Leu Asn Pro Ile Glu  
             65                    70                    75                    80  
 Arg Ala Val Leu Leu Thr Ala Cys His Glu Leu Ser Ala Met Pro Glu  
                     85                    90                    95  
 Thr Pro Tyr Pro Val Ile Ile Asn Glu Ala Ile Glu Val Thr Lys Thr  
             100                    105                    110  
 Phe Gly Gly Thr Asp Gly His Lys Phe Val Asn Gly Ile Leu Asp Lys  
             115                    120                    125  
 Leu Ala Ala Gln Ile Arg Pro Asp Glu Pro Lys Arg Arg  
             130                    135                    140

<210> 2219  
 <211> 477  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 2219  
 atgaacacca tcgcccccaa cctcgacggc aaacacctcc gcatcggcac cgtacaggca 60  
 cgcttcacca acgaaatcgg cagccaaatg ctcaaagtct gctgccgcac cctccaagaa 120  
 ttgggcgtag cagacgaaaa catcacgctc gccaccgtac ccggcgcgct tgaaatcccc 180  
 atcgcgctga tgaactttgc ctcttccgaa aaatttgacg cactgattgc catcggcgctc 240  
 gtcacccgtg gcgaaaccta ccatttcgag ctgggttgcca acgaatccgg cgcagggatc 300  
 ggccgcgctc cactcgacta caacatcccg attgccaacg ccgtcctgac caccgaaaac 360  
 gacgcgcagg caattgaacg gattggagaa aaagcctcgg atgccgcaa agtcgccgta 420  
 gaatgcgcca acctcgtcaa ccttctgctc gaagaacagt ttgaagacga agaataa 477

<210> 2220  
 <211> 158  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 2220  
 Met Asn Thr Ile Ala Pro Asn Leu Asp Gly Lys His Leu Arg Ile Gly  
     1                    5                    10                    15

Ile Val Gln Ala Arg Phe Thr Asn Glu Ile Gly Ser Gln Met Leu Lys  
                   20                  25                  30  
 Val Cys Cys Arg Thr Leu Gln Glu Leu Gly Val Ala Asp Glu Asn Ile  
                   35                  40                  45  
 Thr Val Ala Thr Val Pro Gly Ala Leu Glu Ile Pro Ile Ala Leu Met  
           50                  55                  60  
 Asn Phe Ala Ser Ser Glu Lys Phe Asp Ala Leu Ile Ala Ile Gly Val  
   65                  70                  75                  80  
 Val Ile Arg Gly Glu Thr Tyr His Phe Glu Leu Val Ala Asn Glu Ser  
                   85                  90                  95  
 Gly Ala Gly Ile Gly Arg Val Ala Leu Asp Tyr Asn Ile Pro Ile Ala  
                   100                  105                  110  
 Asn Ala Val Leu Thr Thr Glu Asn Asp Ala Gln Ala Ile Glu Arg Ile  
           115                  120                  125  
 Gly Glu Lys Ala Ser Asp Ala Ala Lys Val Ala Val Glu Cys Ala Asn  
   130                  135                  140  
 Leu Val Asn Leu Leu Leu Glu Glu Gln Phe Glu Asp Glu Glu  
  145                  150                  155

<210> 2221  
 <211> 477  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2221  
 atgaacacca tcgcccccaa cctcgacggc aaacacctcc gcatcggcac cgtacaggca 60  
 cgcttcacca acgaaatcgg cagcgaaatg ctcaaagtct gctgccgcac cctccaagaa 120  
 ttgggcgtgg cagacgaaaa cattaccgtc gccaccgtac ccggcgcgct tgaaatcccc 180  
 atcgcgctga tgaactttgc ctcttccgaa aagtttgacg cactgattgc catcggcgtc 240  
 gtcacccgtg gcgaaaaccta ccatttcgag ctggtttcca acgaatccgg agcaggcgtc 300  
 agccgcgtcg cactcgacta caatatcccg attgccaatg ccgtcctaac caccgaaaac 360  
 gacgcgcagg caatcgaacg gattgaagaa aaagcctcgg atgccgcaa agtcgccgtc 420  
 gaatgcgcca acctcgtaa cctgctgctc gaagaacagt ttgaagacga agaataa 477

<210> 2222  
 <211> 158  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2222  
 Met Asn Thr Ile Ala Pro Asn Leu Asp Gly Lys His Leu Arg Ile Gly  
   1                  5                  10                  15  
 Ile Val Gln Ala Arg Phe Thr Asn Glu Ile Gly Ser Glu Met Leu Lys  
           20                  25                  30

Val Cys Cys Arg Thr Leu Gln Glu Leu Gly Val Ala Asp Glu Asn Ile  
35 40 45

Thr Val Ala Thr Val Pro Gly Ala Leu Glu Ile Pro Ile Ala Leu Met  
50 55 60

Asn Phe Ala Ser Ser Glu Lys Phe Asp Ala Leu Ile Ala Ile Gly Val  
65 70 75 80

Val Ile Arg Gly Glu Thr Tyr His Phe Glu Leu Val Ser Asn Glu Ser  
85 90 95

Gly Ala Gly Val Ser Arg Val Ala Leu Asp Tyr Asn Ile Pro Ile Ala  
100 105 110

Asn Ala Val Leu Thr Thr Glu Asn Asp Ala Gln Ala Ile Glu Arg Ile  
115 120 125

Glu Glu Lys Ala Ser Asp Ala Ala Lys Val Ala Val Glu Cys Ala Asn  
130 135 140

Leu Val Asn Leu Leu Leu Glu Glu Gln Phe Glu Asp Glu Glu  
145 150 155

<210> 2223  
<211> 477  
<212> DNA  
<213> Neisseria meningitidis

<400> 2223  
atgaacacca tcgcccccaa cctcgacggc aaacacctcc gcatcgggcat cgtacaggca 60  
cgcttcacca acgaaatcgg cagcgaaatg ctcaaagtct gctgccgcac cctccaagaa 120  
ttggcggtgg cagacgaaaa cattaccgtc gccaccgtac ccggcgcgct tgaaatcccc 180  
atcgcgctga tgaactttgc ctcttctgaa aaatttgacg cactgattgc catcgggcgtc 240  
gttatccgtg gcgaaaccta ccatttcgag ctggtttcca acgaatccgg agcaggggtc 300  
agccgcgtcg cactcgacta caacatcccg attgccaatg ccgtcctgac caccgaaaac 360  
gacgcacagg caatcgaacg gattgaagaa aaagcctcgg atgccgcaa agtcgccgta 420  
gaatgcgcca acctcgtcaa cctcctgctc gaagaacagt ttgaagacga agaataa 477

<210> 2224  
<211> 158  
<212> PRT  
<213> Neisseria meningitidis

<400> 2224  
Met Asn Thr Ile Ala Pro Asn Leu Asp Gly Lys His Leu Arg Ile Gly  
1 5 10 15

Ile Val Gln Ala Arg Phe Thr Asn Glu Ile Gly Ser Glu Met Leu Lys  
20 25 30

Val Cys Cys Arg Thr Leu Gln Glu Leu Gly Val Ala Asp Glu Asn Ile  
35 40 45

Thr Val Ala Thr Val Pro Gly Ala Leu Glu Ile Pro Ile Ala Leu Met

50	55	60
Asn Phe Ala Ser Ser Glu Lys Phe Asp Ala Leu Ile Ala Ile Gly Val		
65	70	75 80
Val Ile Arg Gly Glu Thr Tyr His Phe Glu Leu Val Ser Asn Glu Ser		
	85	90 95
Gly Ala Gly Val Ser Arg Val Ala Leu Asp Tyr Asn Ile Pro Ile Ala		
100	105	110
Asn Ala Val Leu Thr Thr Glu Asn Asp Ala Gln Ala Ile Glu Arg Ile		
115	120	125
Glu Glu Lys Ala Ser Asp Ala Ala Lys Val Ala Val Glu Cys Ala Asn		
130	135	140
Leu Val Asn Leu Leu Leu Glu Glu Gln Phe Glu Asp Glu Glu		
145	150	155

<210> 2225  
 <211> 597  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 2225  
 atgccgcaga ttttggtgcg gattttcctc attcgggtatt cctttatttg ggaaacgggtg 60  
 cgcttggtgcc gtttcagacg gcattcccgga tcagtcgatt ttgatgtatt cgacagaaaag 120  
 gattttcaatt tcttcacggc cttccggcgt gttcaaaacc acttcgtcgc cttcgcgcgc 180  
 tttaatcagg caacgcgcca acggcgaaat ccaagaaatt ttgttttgcg cggatatgat 240  
 ttcacgcacg ccgacgattt tgacggtttg ctgcgcgccg tcgccgcgca acagaccgac 300  
 ggtcgcgcgcg aaaaatactt ggtcggtcgc ttcgcgcaat tcgggatcga cgacgacggc 360  
 agcctccaaa cgtttggtca ggaaacggat gcggcggtcg atttcgcgca tacggcgttt 420  
 gcgtaaaaga tagtcgccgt ttcgctgcg gtcgccgttg cctgccgcc agttgacgat 480  
 ttggacgatt tcggggcggt ctttattgac cagttgataa agctcgtctt tcaatgcctg 540  
 ccatccggcg ggcgtaatgt agtttttggg ttcgggtactc atattgtgtg cggatga 597

<210> 2226  
 <211> 198  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 2226  
 Met Pro Gln Ile Leu Val Arg Ile Phe Leu Ile Arg Tyr Ser Phe Ile  
 1 5 10 15  
 Trp Glu Thr Val Arg Leu Cys Arg Phe Arg Arg His Ser Arg Ser Val  
 20 25 30  
 Asp Phe Asp Val Phe Asp Arg Lys Asp Phe Asn Phe Leu Thr Ala Phe  
 35 40 45  
 Arg Arg Val Gln Asn His Phe Val Ala Phe Ala Arg Phe Asn Gln Ala  
 50 55 60

Thr Arg Gln Arg Arg Asn Pro Arg Asn Phe Val Leu Arg Gly Ile Asp  
 65 70 75 80  
 Phe Ile Asp Ala Asp Asp Phe Asp Gly Leu Leu Ala Pro Val Ala Ala  
 85 90 95  
 Gln Gln Thr Asp Gly Arg Ala Glu Lys Tyr Leu Val Gly Arg Phe Ala  
 100 105 110  
 Gln Phe Gly Ile Asp Asp Asp Gly Ser Leu Gln Thr Phe Gly Gln Glu  
 115 120 125  
 Thr Asp Ala Ala Val Asp Phe Ala His Thr Ala Phe Ala Val Lys Ile  
 130 135 140  
 Val Ala Val Phe Ala Ala Val Ala Val Ala Cys Arg Pro Val Asp Asp  
 145 150 155 160  
 Leu Asp Asp Phe Gly Ala Phe Phe Ile Asp Gln Leu Ile Lys Leu Val  
 165 170 175  
 Phe Gln Cys Leu Pro Ser Gly Gly Arg Asn Val Val Phe Gly Phe Gly  
 180 185 190  
 Thr His Ile Val Cys Gly  
 195

<210> 2227  
 <211> 597  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2227  
 atgccgcaga ttttggtgcg gattttcctc attcgggtatt cctttatttg ggaaacggcg 60  
 cgcttttgcc gtttcagacg gcattcccga tcagtcgatt ttgatgtatt cgacagaaaag 120  
 gatttcaatt tcctcacgcc ctccggcggt gttcaaaacc acttcgtcgc cttcgcgcgc 180  
 tttaatcaga caacgagcca gcggcgaaat ccaagaaatt ttgttttgcg cggtatcgat 240  
 ttcacgatg ccgacgattt tgacggtttg ctgcgcgccg tcgtcgcgca acagtccgac 300  
 cgtcgcgcgcg aaaaacactt ggtcgggtcgc ttgcgcgaat tcgggatcga cgacgacggc 360  
 agcctccaaa cgtttggtca ggaaacggat gcggcggtcg atttcgcgca tacggcggtt 420  
 gccgtaaaga tagtcgccgt tttcgctgcg gtcgcggttg cctgccgcc agttgacgat 480  
 ttggacgatt tcggggcggt ctttggtgac cagttgataa agctcgtctt tcaatgcctg 540  
 ccatccggcg ggcgtaatgt agtttttgggt ttcggtactc atattgtgtg cggatga 597

<210> 2228  
 <211> 198  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2228  
 Met Pro Gln Ile Leu Val Arg Ile Phe Leu Ile Arg Tyr Ser Phe Ile  
 1 5 10 15

Trp Glu Thr Ala Arg Phe Cys Arg Phe Arg Arg His Ser Arg Ser Val



20

25

30

Asp Phe Asp Val Phe Asp Arg Lys Asp Phe Asn Phe Leu Thr Pro Phe  
 35 40 45

Arg Arg Val Gln Asn His Phe Val Ala Phe Ala Arg Phe Asn Gln Thr  
 50 55 60

Thr Ser Gln Arg Arg Asn Pro Arg Asn Phe Val Leu Arg Gly Ile Asp  
 65 70 75 80

Phe Ile Asp Ala Asp Asp Phe Asp Gly Leu Leu Ala Pro Val Val Ala  
 85 90 95

Gln Gln Ser Asp Arg Arg Ala Glu Lys His Leu Val Gly Arg Phe Ala  
 100 105 110

Gln Phe Gly Ile Asp Asp Asp Gly Ser Leu Gln Thr Phe Gly Gln Glu  
 115 120 125

Thr Asp Ala Ala Val Asp Phe Ala His Thr Ala Phe Ala Val Lys Ile  
 130 135 140

Val Ala Val Phe Ala Ala Val Ala Val Ala Cys Arg Pro Val Asp Asp  
 145 150 155 160

Leu Asp Asp Phe Gly Ala Phe Phe Val Asp Gln Leu Ile Lys Leu Val  
 165 170 175

Phe Gln Cys Leu Pro Ser Gly Gly Arg Asn Val Val Phe Gly Phe Gly  
 180 185 190

Thr His Ile Val Cys Gly  
 195

&lt;210&gt; 2229

&lt;211&gt; 597

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 2229

atgccgcaga ttttggtgcg gattttcctc attcgggtatt cctttatttg ggaaacggcg 60  
 cgtttggtgcc gtttcagacg gcattcccga tcagtcgatt ttgatgtatt cgacagaaag 120  
 gatttcaatt tcttcacgcc cttccggcgt gtttaaaacc acttcgtcgc cttcacgcgc 180  
 tttaatcaga caacgagcca gcggcgaaat ccaagaaatt ttgttttgcg cggatcgcg 240  
 ttcacgcgatg ccgacgattt tgacggtttg ctgcgcgccg tcgcgcgcga acagaccgac 300  
 ggtcgcgcgcg aaaaacactt ggtcgggtcgc ttcgcgcgaat tcgggatcaa cgacgacggc 360  
 ggcttccaaa cgcttggtca ggaaacggat gcggcggtcg atttcgcgca tacggcggtt 420  
 gccgtaaagg tagtcgccgt tttcgtcgcg gtcgcggttg cctgcgcgcc agttgacgat 480  
 ttggacgatt tcggggcggt ctttattaac cagttgataa agctcgtctt tcaatgcctg 540  
 ccatccggcg ggcgtaatgt agtttttggt ttcgggtactc atattgtgtg cggatga 597

&lt;210&gt; 2230

&lt;211&gt; 197

&lt;212&gt; PRT

<213> Neisseria meningitidis

<400> 2230

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Met Pro Gln Ile Leu Val Arg Ile Phe Leu Ile Arg Tyr Ser Phe Ile
  1           5           10           15

Trp Glu Thr Ala Arg Leu Cys Arg Phe Arg Arg His Ser Arg Ser Val
          20           25           30

Asp Phe Asp Val Phe Asp Arg Lys Asp Phe Asn Phe Leu Thr Pro Phe
      35           40           45

Arg Arg Val Asn His Phe Val Ala Phe Thr Arg Phe Asn Gln Thr Thr
  50           55           60

Ser Gln Arg Arg Asn Pro Arg Asn Phe Val Leu Arg Gly Ile Asp Phe
  65           70           75           80

Ile Asp Ala Asp Asp Phe Asp Gly Leu Leu Ala Pro Val Ala Ala Gln
          85           90           95

Gln Thr Asp Gly Arg Ala Glu Lys His Leu Val Gly Arg Phe Ala Gln
      100           105           110

Phe Gly Ile Asn Asp Asp Gly Gly Phe Gln Thr Leu Gly Gln Glu Thr
      115           120           125

Asp Ala Ala Val Asp Phe Ala His Thr Ala Phe Ala Val Lys Val Val
      130           135           140

Ala Val Phe Ala Ala Val Ala Val Ala Cys Arg Pro Val Asp Asp Leu
      145           150           155           160

Asp Asp Phe Gly Ala Phe Phe Ile Asn Gln Leu Ile Lys Leu Val Phe
      165           170           175

Gln Cys Leu Pro Ser Gly Gly Arg Asn Val Val Phe Gly Phe Gly Thr
      180           185           190

His Ile Val Cys Gly
      195
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<210> 2231

<211> 498

<212> DNA

<213> Neisseria gonorrhoeae

<400> 2231

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atgaatagcc tccccattgc cgacctcctc gcctccgccg tcatcgccgc ctgcatcgtc 60
atttcacga tgcgcggcgt gattgcggaa gcaggttcga tggtagcatg ggtggtttcc 120
ttcttttttg ccaaactctt tgccgcaccc ttgcgcgacc tcgcctttgc ctcgttccaa 180
ccccgcctgt ttgcattggc tctgtcattc atttccctgt tcgtcattgc ctgtctgata 240
cagaaaatgc tccgttgcgt gctgaccggc gcagtttcgg cggtcgggtct gggctttgcc 300
aaccgcattt tgggcggtgt attcggtgca ttgaaaggcg ttttgattgt taccctgctg 360
atcatgcttg cttcaaaaac cgacctgccc gataccgaag aatggcaaca gtcctatacc 420
gtaccgtttt tcgtatcgct ttccgaagcg gtgttaaacc atacggacaa cgcacccgaa 480
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tccctcgacg acgactaa

498

<210> 2232

<211> 165

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 2232

Met Asn Ser Leu Pro Ile Ala Asp Leu Leu Ala Ser Ala Val Ile Ala  
1 5 10 15

Ala Cys Ile Val Ile Ser Thr Met Arg Gly Val Ile Ala Glu Ala Gly  
20 25 30

Ser Met Val Ala Trp Val Val Ser Phe Phe Phe Ala Lys Leu Phe Ala  
35 40 45

Ala Pro Phe Ala Asp Leu Ala Phe Ala Ser Phe Gln Pro Arg Leu Phe  
50 55 60

Ala Leu Ala Leu Ser Phe Ile Ser Leu Phe Val Ile Ala Cys Leu Ile  
65 70 75 80

Gln Lys Met Leu Arg Ser Leu Leu Thr Gly Ala Val Ser Ala Val Gly  
85 90 95

Leu Gly Phe Ala Asn Arg Ile Leu Gly Gly Val Phe Gly Ala Leu Lys  
100 105 110

Gly Val Leu Ile Val Thr Leu Leu Ile Met Leu Ala Ser Lys Thr Asp  
115 120 125

Leu Pro Asp Thr Glu Glu Trp Gln Gln Ser Tyr Thr Val Pro Phe Phe  
130 135 140

Val Ser Leu Ser Glu Ala Val Leu Asn His Thr Asp Asn Ala Pro Glu  
145 150 155 160

Ser Leu Asp Asp Asp  
165

<210> 2233

<211> 498

<212> DNA

<213> *Neisseria meningitidis*

<400> 2233

atgaatagcc tccccattgc cgacctctc gtctccgcgc tcatcgccgc ctgcatcgtg 60  
ctatccgcga tgcgcggcgt gattgcggag gcaggctcaa tggcggcatg ggtgggtttcc 120  
ttctttttcg ccaaaactctt tgccgcctcc ttccgcgacc tcgcctttgc ctcgttccaa 180  
ccccgcctgt ttgcattggc tctgtcgttc atttccctgt tcgtcattgc ctgtctgatc 240  
cagaaaatgc tccgttcgct gctgaccagc gcagtttcgg cggtcgggtt gggctttgcc 300  
aaccgcattt tgggcggcgt attcggtgca ttgaaaggcg ttttgattgt taccctgctg 360  
gtcatgcttg cttcaaaaac cgacctgccc gataccgaag aatggcggca atcttacaca 420  
ctgccgtttt tcgtatcgtt ttccgaagcc gtgttgaaac atagcggcgg cacggcggaa 480

actccggaag acgattga

498

<210> 2234

<211> 165

<212> PRT

<213> *Neisseria meningitidis*

<400> 2234

Met Asn Ser Leu Pro Ile Ala Asp Leu Leu Val Ser Ala Val Ile Ala  
1 5 10 15

Ala Cys Ile Val Leu Ser Ala Met Arg Gly Val Ile Ala Glu Ala Gly  
20 25 30

Ser Met Ala Ala Trp Val Val Ser Phe Phe Phe Ala Lys Leu Phe Ala  
35 40 45

Ala Ser Phe Ala Asp Leu Ala Phe Ala Ser Phe Gln Pro Arg Leu Phe  
50 55 60

Ala Leu Ala Leu Ser Phe Ile Ser Leu Phe Val Ile Ala Cys Leu Ile  
65 70 75 80

Gln Lys Met Leu Arg Ser Leu Leu Thr Ser Ala Val Ser Ala Val Gly  
85 90 95

Leu Gly Phe Ala Asn Arg Ile Leu Gly Gly Val Phe Gly Ala Leu Lys  
100 105 110

Gly Val Leu Ile Val Thr Leu Leu Val Met Leu Ala Ser Lys Thr Asp  
115 120 125

Leu Pro Asp Thr Glu Glu Trp Arg Gln Ser Tyr Thr Leu Pro Phe Phe  
130 135 140

Val Ser Leu Ser Glu Ala Val Leu Asn His Ser Gly Gly Thr Ala Glu  
145 150 155 160

Thr Pro Glu Asp Asp  
165

<210> 2235

<211> 498

<212> DNA

<213> *Neisseria meningitidis*

<400> 2235

atgaataacc tccccgttgc cgacctctc gtctccgcc tcatcgccgc ctgcatcgtg 60  
ctatccgcga tgcgcggcgt gattgctgag gctggctcaa tggcggcatg ggtggttgcc 120  
ttttttttcg ccaaactctt tgccgcaccc ttgcgcgaca tcgcctttgc atcgttccaa 180  
ccccgcctgt ttgcattggc tctgtcgttc atttcctat tcgtcattgc ctgtctgata 240  
cagaaaatac tccgctcgct gctgaccggg gcagtttcgg cggtcggttt gggctttgcc 300  
aaccgcattt tgggcggcgt attcggtgca ttgaaaggca ttttgattat taccctgctg 360  
gtcatgctcg cttcaaaaac cgacctgcc gataccgaag aatggcggca atcttacaca 420  
ctgccgtttt tcgtatcgct ttccgaagcc gtgttgaacc atagcggcgg cacgcgggaa 480

actccggaag acgattga

498

<210> 2236

<211> 165

<212> PRT

<213> *Neisseria meningitidis*

<400> 2236

Met Asn Asn Leu Pro Val Ala Asp Leu Leu Val Ser Ala Ile Ile Ala  
1 5 10 15

Ala Cys Ile Val Leu Ser Ala Met Arg Gly Val Ile Ala Glu Ala Gly  
20 25 30

Ser Met Ala Ala Trp Val Val Ala Phe Phe Phe Ala Lys Leu Phe Ala  
35 40 45

Ala Pro Phe Ala Asp Ile Ala Phe Ala Ser Phe Gln Pro Arg Leu Phe  
50 55 60

Ala Leu Ala Leu Ser Phe Ile Ser Leu Phe Val Ile Ala Cys Leu Ile  
65 70 75 80

Gln Lys Ile Leu Arg Ser Leu Leu Thr Gly Ala Val Ser Ala Val Gly  
85 90 95

Leu Gly Phe Ala Asn Arg Ile Leu Gly Gly Val Phe Gly Ala Leu Lys  
100 105 110

Gly Ile Leu Ile Ile Thr Leu Leu Val Met Leu Ala Ser Lys Thr Asp  
115 120 125

Leu Pro Asp Thr Glu Glu Trp Arg Gln Ser Tyr Thr Leu Pro Phe Phe  
130 135 140

Val Ser Leu Ser Glu Ala Val Leu Asn His Ser Gly Gly Thr Ala Glu  
145 150 155 160

Thr Pro Glu Asp Asp  
165

<210> 2237

<211> 663

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 2237

atgacgaagg gcagttcggc gatgtccagc ccacgcgcgg cgatatcggg ggcgacgagg 60  
acgcgcaggc tgccgtcttt gaaggcgttg agtgtttcga gcctgctttg ttgggaacgg 120  
tcgccgtgta tcgcctgtgc ggacaggttg cggcgaccca gttcgcgcgt tacgcggtcg 180  
acgctttggt tggttttgca aaagacgata acttggttca tatgcagatc gacaatcagc 240  
cgttcgagca ggttcgcgctt ttggaaggta tcgacggcga tgatgtgttg ttcgacgttg 300  
gcgttggttg tggtttgggc ggcaacctcg acggtttcgg gcgcgttcac gaagtcttgc 360  
gccagtttgc gtatcgggtgc ggagaaggta gcggaaga gcagggttg gcgttggcgg 420  
ggcagcatct gcatgatttt gcggatgtcg tcgataaacc ccatatccaa catgcggtct 480

gcttcgtcca gaacgacgat ttcggctttg tttaaactga tgtttttctg tttcacatgg 540  
 tcgagcagcc gtccgacggt ggcgacgact atttcgcagc cggcagcag gtcggcggtt 600  
 tgtttgcga tgttgacacc gccgaagagg acggtatgcc gcagcggcag gtttttaatg 660  
 tag 663

<210> 2238

<211> 220

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2238

Met Thr Lys Gly Ser Ser Ala Met Ser Ser Pro Arg Ala Ala Ile Ser  
 1 5 10 15

Val Ala Thr Arg Thr Arg Arg Leu Pro Ser Leu Lys Ala Leu Ser Val  
 20 25 30

Ser Ser Leu Leu Cys Trp Glu Arg Ser Pro Cys Ile Ala Cys Ala Asp  
 35 40 45

Arg Leu Arg Arg Thr Ser Ser Arg Val Thr Arg Ser Thr Leu Cys Leu  
 50 55 60

Val Leu Gln Lys Thr Ile Thr Trp Phe Ile Cys Arg Ser Thr Ile Ser  
 65 70 75 80

Arg Ser Ser Arg Leu Arg Phe Trp Lys Val Ser Thr Ala Met Met Cys  
 85 90 95

Cys Ser Thr Leu Ala Leu Val Val Phe Trp Ala Ala Thr Ser Thr Val  
 100 105 110

Ser Gly Ala Phe Met Lys Ser Cys Ala Ser Leu Arg Ile Gly Ala Glu  
 115 120 125

Lys Val Ala Glu Lys Ser Arg Val Trp Arg Trp Arg Gly Ser Ile Cys  
 130 135 140

Met Ile Leu Arg Met Ser Ser Ile Asn Pro Ile Ser Asn Met Arg Ser  
 145 150 155 160

Ala Ser Ser Arg Thr Thr Ile Ser Ala Leu Phe Lys Leu Met Phe Phe  
 165 170 175

Cys Phe Thr Trp Ser Ser Ser Arg Pro Thr Val Ala Thr Thr Ile Ser  
 180 185 190

Gln Pro Ala Arg Arg Ser Ala Val Cys Leu Ser Met Leu Thr Pro Pro  
 195 200 205

Lys Arg Thr Val Cys Arg Ser Gly Arg Phe Leu Met  
 210 215 220

<210> 2239

<211> 663

<212> DNA

<213> *Neisseria meningitidis*

<400> 2239

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atgacgaagg gcagttcggc aatgtccagc ccgcgcgcgg cgatgtcggg gccgacgagg 60
acgcgcaggt tgccgtcttt gaaggcgttg agtgtttcga gccggctttg ttgggaacgg 120
tcgccgtgta tcgcctgtgc ggacagggtg cggcgcacca gttcgcgcgt tacgcggtcg 180
acgctttggt tggttttgca gaacacgatg acctggttca tatgcaaadc gacaatcagc 240
cgttcgagca ggttgcgctt ctgaatggta tcgacggcga tgatgtgctg ctcgacgttg 300
gcgttggtgg tgttttgccg gccgacttcg acggtttcgg gcgcgttcac gaagtcttgc 360
gccagtttgc gtatcggggc ggagaagggt gcggaaaaga gcagggtttg gcgttgccgc 420
ggcagcatct gcatgatttt gcggatgtcg tcgataaaaac ccataatccag catacggtcg 480
gcttcgtcca aaacgacgat ttcgactttg ttcaaattgga tgtttttctg tttcacgtgg 540
tcgagcagcc gtccgacggt gccgacgacg atttcgcagc cggcacgcag gtcggcggtc 600
tgtttgtcca tattcatacc gccgaacaag acggtgtggc gcagcggcag gtttttgatg 660
tag
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<210> 2240

<211> 219

<212> PRT

<213> *Neisseria meningitidis*

<400> 2240

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Met Thr Lys Gly Ser Ser Ala Met Ser Ser Pro Arg Ala Ala Met Ser
 1          5          10          15

Val Ala Thr Arg Thr Arg Arg Leu Pro Ser Leu Lys Ala Leu Ser Val
      20          25          30

Ser Ser Arg Leu Cys Trp Glu Arg Ser Pro Cys Ile Ala Cys Ala Asp
      35          40          45

Arg Leu Arg Arg Thr Ser Ser Arg Val Thr Arg Ser Thr Leu Cys Leu
      50          55          60

Val Leu Gln Asn Thr Met Thr Trp Phe Ile Cys Lys Ser Thr Ile Ser
      65          70          75          80

Arg Ser Ser Arg Leu Arg Phe Met Val Ser Thr Ala Met Met Cys Cys
      85          90          95

Ser Thr Leu Ala Leu Val Val Phe Cys Ala Ala Thr Ser Thr Val Ser
     100          105          110

Gly Ala Phe Met Lys Ser Cys Ala Ser Leu Arg Ile Gly Ala Glu Lys
     115          120          125

Val Ala Glu Lys Ser Arg Val Trp Arg Trp Arg Gly Ser Ile Cys Met
     130          135          140

Ile Leu Arg Met Ser Ser Ile Lys Pro Ile Ser Ser Ile Arg Ser Ala
     145          150          155          160

Ser Ser Lys Thr Thr Ile Ser Thr Leu Phe Lys Trp Met Phe Phe Cys
     165          170          175
```

Phe Thr Trp Ser Ser Ser Arg Pro Thr Val Ala Thr Thr Ile Ser Gln  
180 185 190

Pro Ala Arg Arg Ser Ala Val Cys Leu Ser Ile Phe Ile Pro Pro Asn  
195 200 205

Lys Thr Val Trp Arg Ser Gly Arg Phe Leu Met  
210 215

<210> 2241

<211> 663

<212> DNA

<213> Neisseria meningitidis

<400> 2241

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atgacgaagg gcagttcggc aatatccagc ccccgcgcg gcatatcggg ggcgacgagg 60
acgcgcaggt tgccgtcttt gaaggcggtg agtggtttcg gccggctttg ttgggaacgg 120
tcgccgtgta tcgcctgtgc ggacagggtg cggcgcacca gttcgcgcggt tacgcgggtcg 180
acgctttggt tgggttttgca gaacacgatg acctgggtca tatgcaaata gacaatcagc 240
cgttcgagca ggttgcgctt ctgaatggta tcgacggcga tgatgtgctg ctcgacgttg 300
gcgttgggtg tgtcttgcgc ggcgacttcg acggtttcgg gcgcggtcat gaagtcttgc 360
gccagtttgc gtatcggggc ggagaagggt gcggaaga gcagggtttg gcgttggcgg 420
ggcagcatct gcatgatatt gcggatgtcg tcgataaaac ccataatccag catacgggtcg 480
gcttcgtcca aaacgacgat ttcgactttg ttcaaata tgtttttctg tttcacgtgg 540
tcgagcagcc gtccgacggt ggcgacgacg atttcgcagc cggcacgcag gtcggcggtc 600
tgtttgtcca tattcatacc gccgaacaag acggtgtggc gcagcggcag gtttttgatg 660
tag
663

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<210> 2242

<211> 219

<212> PRT

<213> Neisseria meningitidis

<400> 2242

Met Thr Lys Gly Ser Ser Ala Ile Ser Ser Pro Arg Ala Ala Ile Ser  
1 5 10 15

Val Ala Thr Arg Thr Arg Arg Leu Pro Ser Leu Lys Ala Leu Ser Val  
20 25 30

Ser Ser Arg Leu Cys Trp Glu Arg Ser Pro Cys Ile Ala Cys Ala Asp  
35 40 45

Arg Leu Arg Arg Thr Ser Ser Arg Val Thr Arg Ser Thr Leu Cys Leu  
50 55 60

Val Leu Gln Asn Thr Met Thr Trp Phe Ile Cys Lys Ser Thr Ile Ser  
65 70 75 80

Arg Ser Ser Arg Leu Arg Phe Met Val Ser Thr Ala Met Met Cys Cys  
85 90 95

Ser Thr Leu Ala Leu Val Val Ser Cys Ala Ala Thr Ser Thr Val Ser  
100 105 110



Gly Ala Phe Met Lys Ser Cys Ala Ser Leu Arg Ile Gly Ala Glu Lys  
115 120 125

Val Ala Glu Lys Ser Arg Val Trp Arg Trp Arg Gly Ser Ile Cys Met  
130 135 140

Ile Leu Arg Met Ser Ser Ile Lys Pro Ile Ser Ser Ile Arg Ser Ala  
145 150 155 160

Ser Ser Lys Thr Thr Ile Ser Thr Leu Phe Lys Trp Met Phe Phe Cys  
165 170 175

Phe Thr Trp Ser Ser Ser Arg Pro Thr Val Ala Thr Thr Ile Ser Gln  
180 185 190

Pro Ala Arg Arg Ser Ala Val Cys Leu Ser Ile Phe Ile Pro Pro Asn  
195 200 205

Lys Thr Val Trp Arg Ser Gly Arg Phe Leu Met  
210 215

<210> 2243

<211> 786

<212> DNA

<213> Neisseria gonorrhoeae

<400> 2243

atgacgacgc cgatggcaat cagtgcgtca aatttttcgg aagaggcaaa gttcatcagc 60  
gcgatgggga tttcaagcgc gccgggtacg gtggcgacgg tgatgttttc gtctgctacg 120  
cccaattcct ggaggggtgcg gcagcagact ttgagcattt ggctgccgat ttcgttggtg 180  
aagcgtgcct gtacgatgcc gatgcggagg tgtttgccgt cgaggttggg ggcgatgggtg 240  
ttcattgggt gtccttttgt attcgggggt tcggaatgcc gtctgaagggt ttcagtcttg 300  
cggtgccag tcggcaacgg tttggaatgt gccgtcttcg gcaagctccc acgcgtgcc 360  
ttcgggttg gaaagcagtg cggcggtttc agggttggtt ttggtgatgt cggcgaggct 420  
gacgatgctg aagttgtcgg ggtcgtcgggt gtattcgtcg gtttcgtcgc cgctgaagaa 480  
acgccagccg ctgtcgtttt caaaaacggg ggcttcgcgg taaaggaagc cgacgggccg 540  
gttttggttg gcgacggtgt tgggtggcgt gcagcggtcg agtgccgagg aaagtgcctg 600  
tgcaaatgcg ttcattgcgg gaatacgttg ggggggggga aacttgcgga ttttaccacg 660  
attcccgcgt tgtcggcaga cggcggcgggt ttggtggtac aatgtgcgcc gtttcgagcc 720  
ttaaggtggt tctgtatttt tggagtatgg aaacgcattc gggctgtttt ttgcggaaga 780  
cggtaa 786

<210> 2244

<211> 261

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2244

Met Thr Thr Pro Met Ala Ile Ser Ala Ser Asn Phe Ser Glu Glu Ala  
1 5 10 15

Lys Phe Ile Ser Ala Met Gly Ile Ser Ser Ala Pro Gly Thr Val Ala  
20 25 30

Thr Val Met Phe Ser Ser Ala Thr Pro Asn Ser Trp Arg Val Arg Gln  
 35 40 45

Gln Thr Leu Ser Ile Trp Leu Pro Ile Ser Leu Val Lys Arg Ala Cys  
 50 55 60

Thr Met Pro Met Arg Arg Cys Leu Pro Ser Arg Leu Gly Ala Met Val  
 65 70 75 80

Phe Ile Gly Cys Pro Leu Val Phe Gly Val Ser Glu Cys Arg Leu Lys  
 85 90 95

Val Ser Val Leu Arg Leu Pro Val Gly Asn Gly Leu Glu Cys Ala Val  
 100 105 110

Phe Gly Lys Leu Pro Arg Ala Ala Phe Gly Leu Gly Lys Gln Cys Gly  
 115 120 125

Gly Phe Arg Val Gly Phe Gly Asp Val Gly Glu Ala Asp Asp Ala Glu  
 130 135 140

Val Val Gly Val Val Gly Val Phe Val Gly Phe Val Ala Ala Glu Glu  
 145 150 155 160

Thr Pro Ala Ala Val Val Phe Lys Asn Gly Gly Phe Ala Val Lys Glu  
 165 170 175

Ala Asp Gly Pro Val Leu Phe Gly Asp Gly Val Gly Gly Asp Ala Ala  
 180 185 190

Val Glu Cys Arg Gly Lys Cys Leu Cys Lys Cys Val His Cys Gly Asn  
 195 200 205

Thr Leu Gly Gly Gly Lys Leu Ala Asp Phe Thr Thr Ile Pro Ala Leu  
 210 215 220

Ser Ala Asp Gly Gly Gly Leu Val Val Gln Cys Ala Pro Phe Ala Ala  
 225 230 235 240

Leu Arg Cys Phe Cys Ile Phe Gly Val Trp Lys Arg Ile Arg Ala Val  
 245 250 255

Phe Cys Gly Arg Arg  
 260

<210> 2245

<211> 782

<212> DNA

<213> Neisseria meningitidis

<400> 2245

atgacgacgc cgatggcaat cagtgcgtca aacttttcgg aagaggcaaa gttcatcagc 60  
 gcgatgggga tttcaagcgc gccgggtacg gtggcgacgg taatgttttc gtctgccacg 120  
 cccaattcctt ggaggggtgcg gcagcagact ttgagcattt cgctgccgat ttcgttggtg 180  
 aagcgtgcct gtacgatgcc gatgcggagg tgtttgccgt cgaggttggg ggcgatggtg 240  
 ttcattgggt gtcctttggt attcggagtt tcggaatgcc gtctgaaggt ttcagtcttg 300

cggtgccag tcggcgacgg ttggaatgt gccgtcttcg gcaagctccc atgcgctgcc 360  
 ttgggttg gagagcagtg cggcggtttc agggttggtt ttggcgatgt cggcgaggct 420  
 gacgatgctg aagtgtgccg gatcgctcgt gtattcgctc gtctcgctcg cgctgaagaa 480  
 acgccagccg ctgtcgTTTT caaaaacggg ggcttcgcgg tagaggaagc cgacgggccg 540  
 gTTTTgttg gcgacggtgt tgggtggcgat acagcggtcg agtgccgagg aaagtgttg 600  
 tgcaaatgcg ttcattacgg gaatacgttg ggggaaaact tacggatttt accacgattc 660  
 gtgcgttgtc ggcagacggc ggcggtttg tggtacaatg tgcgccgttt gcagccttaa 720  
 ggtgtttctg tatttttgga gtatggaaac gcattcgggc tgttttttgc ggaagacggt 780  
 aa 782

<210> 2246

<211> 260

<212> PRT

<213> Neisseria meningitidis

<400> 2246

Met Thr Thr Pro Met Ala Ile Ser Ala Ser Asn Phe Ser Glu Glu Ala  
 1 5 10 15

Lys Phe Ile Ser Ala Met Gly Ile Ser Ser Ala Pro Gly Thr Val Ala  
 20 25 30

Thr Val Met Phe Ser Ser Ala Thr Pro Asn Ser Trp Arg Val Arg Gln  
 35 40 45

Gln Thr Leu Ser Ile Ser Leu Pro Ile Ser Leu Val Lys Arg Ala Cys  
 50 55 60

Thr Met Pro Met Arg Arg Cys Leu Pro Ser Arg Leu Gly Ala Met Val  
 65 70 75 80

Phe Ile Gly Cys Pro Leu Val Phe Gly Val Ser Glu Cys Arg Leu Lys  
 85 90 95

Val Ser Val Leu Arg Leu Pro Val Gly Asp Gly Leu Glu Cys Ala Val  
 100 105 110

Phe Gly Lys Leu Pro Cys Ala Ala Phe Gly Leu Gly Glu Gln Cys Gly  
 115 120 125

Gly Phe Arg Val Gly Phe Gly Asp Val Gly Glu Ala Asp Asp Ala Glu  
 130 135 140

Val Val Arg Ile Val Gly Val Phe Val Gly Leu Val Ala Ala Glu Glu  
 145 150 155 160

Thr Pro Ala Ala Val Val Phe Lys Asn Gly Gly Phe Ala Val Glu Glu  
 165 170 175

Ala Asp Gly Pro Val Leu Phe Gly Asp Gly Val Gly Gly Asp Thr Ala  
 180 185 190

Val Glu Cys Arg Gly Lys Cys Leu Cys Lys Cys Val His Tyr Gly Asn  
 195 200 205

Thr Leu Gly Xaa Lys Leu Thr Asp Phe Thr Thr Ile Arg Ala Leu Ser  
 210 215 220

Ala Asp Gly Gly Gly Leu Val Val Gln Cys Ala Pro Phe Ala Ala Leu  
 225 230 235 240

Arg Cys Phe Cys Ile Phe Gly Val Trp Lys Arg Ile Arg Ala Val Phe  
 245 250 255

Cys Gly Arg Arg  
 260

<210> 2247

<211> 782

<212> DNA

<213> Neisseria meningitidis

<400> 2247

ataacgacgc cgatggcaat cagtgcgtca aatttttcag aagaggcaaa gttcatcagc 60  
 gcgatgggga tttcaagcgc gccgggtacg gtggcgacgg taatgttttc gtctgccacg 120  
 cccaattctt ggaggggtgcg gcagcagact ttgagcattt cgctgccgat ttcggttggtg 180  
 aagcgtgcct gtacgatgcc gatgcggagg tgtttgccgt cgaggttggg ggcgatgggtg 240  
 ttcattgagt gtcctttggt attcggagggt ttcggaatgc cgtctgaagg gtcagtcctt 300  
 aggttgccag tcggcgacgg tttggaatgt gccgtcttct gccaatccc acgcgctgcc 360  
 ttcaggttggt gagagcagtg cggcggtttc agggttggtt ttggtgatat cggcgaggct 420  
 gacgatgctg aagttgtccg ggtcgtcggg gtattcgtcg gtctcgtcgc cgctgaagaa 480  
 acgccagccg ctgtcgtttt caaaaacggg ggcttcgcgg tagaggaagc cgacgggctg 540  
 gttttgtttg gcgacggtgt tgggtggcgat gcagcggtcg agtgccgagg aaagtgcctt 600  
 tgcaaatgcg ttcattgcgg gaatacgttg ggggaaaact tgcggatttt accacgattc 660  
 ttgcgttgtc ggcagacggc ggcggtttgg tggtagaatg tgcgcggttt gcagccttaa 720  
 ggtgtttctg tatttttgga gtatggaaac gcattcgggc tgttttttgc ggaagacggg 780  
 aa 782

<210> 2248

<211> 260

<212> PRT

<213> Neisseria meningitidis

<400> 2248

Ile Thr Thr Pro Met Ala Ile Ser Ala Ser Asn Phe Ser Glu Glu Ala  
 1 5 10 15

Lys Phe Ile Ser Ala Met Gly Ile Ser Ser Ala Pro Gly Thr Val Ala  
 20 25 30

Thr Val Met Phe Ser Ser Ala Thr Pro Asn Ser Trp Arg Val Arg Gln  
 35 40 45

Gln Thr Leu Ser Ile Ser Leu Pro Ile Ser Leu Val Lys Arg Ala Cys  
 50 55 60

Thr Met Pro Met Arg Arg Cys Leu Pro Ser Arg Leu Gly Ala Met Val  
 65 70 75 80

Phe Ile Glu Cys Pro Leu Val Phe Gly Gly Phe Gly Met Pro Ser Glu

85

90

95

Gly Ser Val Leu Arg Leu Pro Val Gly Asp Gly Leu Glu Cys Ala Val  
 100 105 110

Phe Cys Gln Phe Pro Arg Ala Ala Phe Arg Leu Gly Glu Gln Cys Gly  
 115 120 125

Gly Phe Arg Val Gly Phe Gly Asp Ile Gly Glu Ala Asp Asp Ala Glu  
 130 135 140

Val Val Arg Val Val Gly Val Phe Val Gly Leu Val Ala Ala Glu Glu  
 145 150 155 160

Thr Pro Ala Ala Val Val Phe Lys Asn Gly Gly Phe Ala Val Glu Glu  
 165 170 175

Ala Asp Gly Leu Val Leu Phe Gly Asp Gly Val Gly Gly Asp Ala Ala  
 180 185 190

Val Glu Cys Arg Gly Lys Cys Leu Cys Lys Cys Val His Cys Gly Asn  
 195 200 205

Thr Xaa Gly Gly Lys Leu Ala Asp Phe Thr Thr Ile Leu Ala Leu Ser  
 210 215 220

Ala Asp Gly Gly Gly Leu Val Val Gln Cys Ala Pro Phe Ala Ala Leu  
 225 230 235 240

Arg Cys Phe Cys Ile Phe Gly Val Trp Lys Arg Ile Arg Ala Val Phe  
 245 250 255

Cys Gly Arg Arg  
 260

<210> 2249

<211> 402

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 2249

atgcgcgatt tcgcggtatg ggtgccttac ggggaacggc ggaaaaattg ggacataagg 60  
 tattgcctcc cgcaccttat tcgcctgagc ccaacccgat tgagaaagtg tgggcgaata 120  
 ttaagcggta tctgcgaacc gttttgtctg attacgcccg atttgacgat gcactactgt 180  
 cctattttga ttttaattga ctatatttgt gtgaatgatg aaataaaaat gccgtctgaa 240  
 ccgatttga ttcagacggc attttgtatg gcaggattta ttcgctttcc aactgaccga 300  
 cccattctga caaggcagtc aggcgttggt cggatttcgc cacgaacggg ttttcggtat 360  
 cccacgcgta gcctgccaaa atcgaagaaa gcatacggct ga 402

<210> 2250

<211> 133

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 2250

Met Arg Asp Phe Ala Val Trp Val Pro Tyr Gly Glu Arg Arg Lys Asn  
 1 5 10 15  
 Trp Asp Ile Arg Tyr Cys Leu Pro His Leu Ile Arg Leu Ser Pro Thr  
 20 25 30  
 Arg Leu Arg Lys Cys Gly Arg Ile Leu Ser Gly Ile Cys Glu Pro Phe  
 35 40 45  
 Cys Leu Ile Thr Pro Asp Leu Thr Met His Tyr Cys Pro Ile Leu Ile  
 50 55 60  
 Leu Ile Asp Tyr Ile Cys Val Asn Asp Glu Ile Lys Met Pro Ser Glu  
 65 70 75 80  
 Pro Asp Trp Ile Gln Thr Ala Phe Cys Met Ala Gly Phe Ile Arg Phe  
 85 90 95  
 Pro Thr Asp Arg Pro Ile Leu Thr Arg Gln Ser Gly Val Val Arg Ile  
 100 105 110  
 Ser Pro Arg Thr Gly Phe Arg Tyr Pro Thr Arg Ser Leu Pro Lys Ser  
 115 120 125  
 Lys Lys Ala Tyr Gly  
 130

<210> 2251  
 <211> 390  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2251  
 atgcgtgatt tcaccgtatg ggtgtcttac gggaaatggc ggaaaaattg ggacataagg 60  
 tattgcctct tgcaccttat tcacctgagc tcaacccgat tgagaaagtg tgggcgaata 120  
 ttaagcggta tctgcgaacc gttttgtctg attacgcccg atttgacgat gcactactgt 180  
 cctatatttga tttaattga ctatgaaatg gcaatgccgt ctgaaccoga ttggattcag 240  
 acggcatttt gtatggcgta cggatttatt cggtttccaa ctgaccgacc cattcggaca 300  
 aggcagtcag gcgttggtcg gatttcgcca cgaacgggtt ttcggtatcc cacgcgtagc 360  
 ctgccaaaat cgaagaaagc atacggctga 390

<210> 2252  
 <211> 129  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2252  
 Met Arg Asp Phe Thr Val Trp Val Ser Tyr Gly Lys Trp Arg Lys Asn  
 1 5 10 15  
 Trp Asp Ile Arg Tyr Cys Leu Leu His Leu Ile His Leu Ser Ser Thr  
 20 25 30  
 Arg Leu Arg Lys Cys Gly Arg Ile Leu Ser Gly Ile Cys Glu Pro Phe  
 35 40 45

Cys Leu Ile Thr Pro Asp Leu Thr Met His Tyr Cys Pro Ile Leu Ile  
 50 55 60

Leu Ile Asp Tyr Glu Met Ala Met Pro Ser Glu Pro Asp Trp Ile Gln  
 65 70 75 80

Thr Ala Phe Cys Met Ala Tyr Gly Phe Ile Arg Phe Pro Thr Asp Arg  
 85 90 95

Pro Ile Arg Thr Arg Gln Ser Gly Val Val Arg Ile Ser Pro Arg Thr  
 100 105 110

Gly Phe Arg Tyr Pro Thr Arg Ser Leu Pro Lys Ser Lys Lys Ala Tyr  
 115 120 125

Gly

<210> 2253

<211> 330

<212> DNA

<213> Neisseria meningitidis

<400> 2253

atgcgcgatt ttaccgtatg ggtgtcttac gggaaatggc ggaaaaattg ggacataagg 60  
 tattgcctct tgcaccttat tcacctgagc tcaaccgat tgagaaagtg tgggcgaata 120  
 ttaagcggta tctgcgaacc gttttgtctg attacgccg atttgacgat gcactactgt 180  
 cctatatttga ttttaattga atattatatt cggtttccaa ctgaccgacc cattctgaca 240  
 aggccgacag gcgttggtcg gatttcgcca cgaacgggtt ttcggtatcc cacgcgtagc 300  
 ctgccaaaat cgaagaaagc atacggtcga 330

<210> 2254

<211> 109

<212> PRT

<213> Neisseria meningitidis

<400> 2254

Met Arg Asp Phe Thr Val Trp Val Ser Tyr Gly Lys Trp Arg Lys Asn  
 1 5 10 15

Trp Asp Ile Arg Tyr Cys Leu Leu His Leu Ile His Leu Ser Ser Thr  
 20 25 30

Arg Leu Arg Lys Cys Gly Arg Ile Leu Ser Gly Ile Cys Glu Pro Phe  
 35 40 45

Cys Leu Ile Thr Pro Asp Leu Thr Met His Tyr Cys Pro Ile Leu Ile  
 50 55 60

Leu Ile Glu Tyr Tyr Ile Arg Phe Pro Thr Asp Arg Pro Ile Leu Thr  
 65 70 75 80

Arg Pro Thr Gly Val Val Arg Ile Ser Pro Arg Thr Gly Phe Arg Tyr  
 85 90 95

Pro Thr Arg Ser Leu Pro Lys Ser Lys Lys Ala Tyr Gly  
 100 105

<210> 2255  
 <211> 441  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 2255  
 atgattaagg aaaccctaatt gcgcccattt ttcctatctt tcgtttttact ccctattttg 60  
 ataaccgcct gcagcacacc ggacaagtct gcccgatggg aaaatatcgg cacaatctca 120  
 aacggcaata ttcatacata tattaataaa gacagtgtga gaaaaaacgg aaatctgatg 180  
 attttccaag ataaaaaagt tgttaccaat ctgaaacaag aacgttttgc caacaccccc 240  
 gcatacaaga ctgccattgc cgagtgggaa atccactgca acaacaaaac ataccgotta 300  
 agttcgctac agttatttga tacaacaaaac acggaaattt ccacacaaaa ctacacagcc 360  
 tcttcctcc gcccgatgag catcctgtcc gggacattaa ctgaaaaaca atatgaaacc 420  
 gtatgcggga aaaaactctg a 441

<210> 2256  
 <211> 146  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 2256  
 Met Ile Lys Glu Thr Leu Met Arg Pro Ile Phe Leu Ser Phe Val Leu  
 1 5 10 15  
 Leu Pro Ile Leu Ile Thr Ala Cys Ser Thr Pro Asp Lys Ser Ala Arg  
 20 25 30  
 Trp Glu Asn Ile Gly Thr Ile Ser Asn Gly Asn Ile His Thr Tyr Ile  
 35 40 45  
 Asn Lys Asp Ser Val Arg Lys Asn Gly Asn Leu Met Ile Phe Gln Asp  
 50 55 60  
 Lys Lys Val Val Thr Asn Leu Lys Gln Glu Arg Phe Ala Asn Thr Pro  
 65 70 75 80  
 Ala Tyr Lys Thr Ala Ile Ala Glu Trp Glu Ile His Cys Asn Asn Lys  
 85 90 95  
 Thr Tyr Arg Leu Ser Ser Leu Gln Leu Phe Asp Thr Lys Asn Thr Glu  
 100 105 110  
 Ile Ser Thr Gln Asn Tyr Thr Ala Ser Ser Leu Arg Pro Met Ser Ile  
 115 120 125  
 Leu Ser Gly Thr Leu Thr Glu Lys Gln Tyr Glu Thr Val Cys Gly Lys  
 130 135 140  
 Lys Leu  
 145



<210> 2257  
<211> 441  
<212> DNA  
<213> Neisseria meningitidis

<400> 2257  
atgattaagg aaaccctaatt gcgcccaatc ttcctatctt tcgtttttatt ccctattttg 60  
ataaccgcct gcagcacacc ggacaagtct gcccgatggg aaaatatcgg cacaatctca 120  
aacggcaata ttcatacata tatcaataaa gacagcgtga gaaaaaacgg aaatctgatg 180  
atgttccaag ataaaaaagt tgttaccaat ctaaaacaag aacgttttgc caacaccccc 240  
gcatacaaga ctgccattgc cgagtgggaa atccactgca acaacaaaac ataccgctta 300  
agttcgctac agttgtttga tacaacaaaac acggaaattt ccacacaaaa ctacacagcc 360  
tcttccctcc gcccgatgag catcctgtcc gggacattaa ccgaaaaaca atatgaaacc 420  
gtatgcggaa aaaaactctg a 441

<210> 2258  
<211> 146  
<212> PRT  
<213> Neisseria meningitidis

<400> 2258  
Met Ile Lys Glu Thr Leu Met Arg Pro Ile Phe Leu Ser Phe Val Leu  
1 5 10 15  
Phe Pro Ile Leu Ile Thr Ala Cys Ser Thr Pro Asp Lys Ser Ala Arg  
20 25 30  
Trp Glu Asn Ile Gly Thr Ile Ser Asn Gly Asn Ile His Thr Tyr Ile  
35 40 45  
Asn Lys Asp Ser Val Arg Lys Asn Gly Asn Leu Met Ile Phe Gln Asp  
50 55 60  
Lys Lys Val Val Thr Asn Leu Lys Gln Glu Arg Phe Ala Asn Thr Pro  
65 70 75 80  
Ala Tyr Lys Thr Ala Ile Ala Glu Trp Glu Ile His Cys Asn Asn Lys  
85 90 95  
Thr Tyr Arg Leu Ser Ser Leu Gln Leu Phe Asp Thr Lys Asn Thr Glu  
100 105 110  
Ile Ser Thr Gln Asn Tyr Thr Ala Ser Ser Leu Arg Pro Met Ser Ile  
115 120 125  
Leu Ser Gly Thr Leu Thr Glu Lys Gln Tyr Glu Thr Val Cys Gly Lys  
130 135 140  
Lys Leu  
145

<210> 2259  
<211> 441  
<212> DNA

<213> Neisseria meningitidis

<400> 2259

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atgattaagg aaaccctaatt gcgcccgaatc ttccatatctt tcgtttttatt ccctattttg 60
ataaccgcct gcagcacacc ggacaagtct gcccgatggg aaaatatcgg cacaatctca 120
aacggcaata ttcatacata tatcaataaa gacagcgtga gaaaaaacgg aaatctgatg 180
attttccnag ataaaaaagt tgttaccaat ctaaaacaag aacgttttgc cnacaccccc 240
gcatacaaga ctgccattgc cgagtgggaa atccactgca acaacaaaac ataccgctta 300
agttcgctac aattgtttga tacaaaaaac acggaaattt ccacacaaaa ntacacagcc 360
tcttcctccc gcccgatgag catcctgtcc gggacattaa ccgaaaaaca atatgaaacc 420
gtatgcggaa aaaaactctg a 441
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<210> 2260

<211> 146

<212> PRT

<213> Neisseria meningitidis

<400> 2260

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Met Ile Lys Glu Thr Leu Met Arg Pro Ile Phe Leu Ser Phe Val Leu
  1               5               10              15

Phe Pro Ile Leu Ile Thr Ala Cys Ser Thr Pro Asp Lys Ser Ala Arg
      20               25              30

Trp Glu Asn Ile Gly Thr Ile Ser Asn Gly Asn Ile His Thr Tyr Ile
      35               40              45

Asn Lys Asp Ser Val Arg Lys Asn Gly Asn Leu Met Ile Phe Xaa Asp
      50               55              60

Lys Lys Val Val Thr Asn Leu Lys Gln Glu Arg Phe Ala Xaa Thr Pro
      65               70              75              80

Ala Tyr Lys Thr Ala Ile Ala Glu Trp Glu Ile His Cys Asn Asn Lys
      85               90              95

Thr Tyr Arg Leu Ser Ser Leu Gln Leu Phe Asp Thr Lys Asn Thr Glu
      100              105             110

Ile Ser Thr Gln Xaa Tyr Thr Ala Ser Ser Leu Arg Pro Met Ser Ile
      115              120             125

Leu Ser Gly Thr Leu Thr Glu Lys Gln Tyr Glu Thr Val Cys Gly Lys
      130              135             140

Lys Leu
145
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<210> 2261

<211> 519

<212> DNA

<213> Neisseria gonorrhoeae

<400> 2261

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atgcgccttt tccccatcgc cgccgccttg acgcttgccg cctgcggtac tgtgcaaagc 60
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acacaatatt tcgtgttgcc cgacagccgc tacatccgtc ctgcaacgca aggcggcgaa 120  
accgccgtcg aagtcogtct tgccgaaccg ctcaaacgcg gcggactggt ctatcaaacc 180

gaccctacc gcatcaaac cgacaaaaac catgtttggg cagacacctt ggacgatatg 240  
ctcgaagcgg cgttgagcaa tgcattcaac cgtttggaca gcacacgcac ctttgttcct 300  
gcctcacgca gcggcagtac cgacaaatgg acggtctata tcgacgcatt ccaaggcagc 360  
tacacgggca aaaccctcat cagcggctac gccgtcctac ccgacggtac gaacagaccc 420  
ttccatatcg aaaccgaaca gcagggtgac ggctacgccg ccatgaccgc cgcactcgaa 480  
cagggactga aacaggcggc gcaacagatg gtcgagtaa 519

<210> 2262

<211> 172

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2262

Met Arg Leu Phe Pro Ile Ala Ala Ala Leu Thr Leu Ala Ala Cys Gly  
1 5 10 15

Thr Val Gln Ser Thr Gln Tyr Phe Val Leu Pro Asp Ser Arg Tyr Ile  
20 25 30

Arg Pro Ala Thr Gln Gly Gly Glu Thr Ala Val Glu Val Arg Leu Ala  
35 40 45

Glu Pro Leu Lys Arg Gly Gly Leu Val Tyr Gln Thr Asp Pro Tyr Arg  
50 55 60

Ile Asn Thr Ala Gln Asn His Val Trp Ala Asp Thr Leu Asp Asp Met  
65 70 75 80

Leu Glu Ala Ala Leu Ser Asn Ala Phe Asn Arg Leu Asp Ser Thr Arg  
85 90 95

Thr Phe Val Pro Ala Ser Arg Ser Gly Ser Thr Asp Lys Trp Thr Val  
100 105 110

Tyr Ile Asp Ala Phe Gln Gly Ser Tyr Thr Gly Lys Thr Leu Ile Ser  
115 120 125

Gly Tyr Ala Val Leu Pro Asp Gly Thr Asn Arg Pro Phe His Ile Glu  
130 135 140

Thr Glu Gln Gln Gly Asp Gly Tyr Ala Ala Met Thr Ala Ala Leu Glu  
145 150 155 160

Gln Gly Leu Lys Gln Ala Ala Gln Gln Met Val Glu  
165 170

<210> 2263

<211> 519

<212> DNA

<213> Neisseria meningitidis

<400> 2263

atgcgcccttt tcccgattgc cgccgccttg tcgcttgccg cctgcggtac tgtgcaaagc 60  
 acacaatatt tegtgttgcc cgacagccgc tacatccgtc ctgcaacgca aggcggcgaa 120  
 actgccgtcg aagtccgtct tgccgaaccg ctcaaacgcg gcggactggt ctatcaaacc 180  
 gaccctacc gcctcaacac cgcacaaaac cacgtctggg cagacacctt ggacgatatg 240  
 ctcgaagcgg cgttgagcaa tgcattcaac cgtttggaac gcacacgcat ctttggtcct 300  
 gcctcacgca gcggcagtag cgaaaaatgg acggtctata tcgacgcatt ccaaggcagc 360  
 tacacgggca aaacctcat cagcggctac gccgtcctac ccgacggtac gaacagaccc 420  
 ttccatatcg aaaccgaaca gcagggtgac ggctacgccg cgatgaccgc cgcactcgaa 480  
 cagggactga aacaggcggc gcaacagatg gtcgagtaa 519

<210> 2264

<211> 172

<212> PRT

<213> *Neisseria meningitidis*

<400> 2264

Met Arg Leu Phe Pro Ile Ala Ala Ala Leu Ser Leu Ala Ala Cys Gly  
 1 5 10 15

Thr Val Gln Ser Thr Gln Tyr Phe Val Leu Pro Asp Ser Arg Tyr Ile  
 20 25 30

Arg Pro Ala Thr Gln Gly Gly Glu Thr Ala Val Glu Val Arg Leu Ala  
 35 40 45

Glu Pro Leu Lys Arg Gly Gly Leu Val Tyr Gln Thr Asp Pro Tyr Arg  
 50 55 60

Leu Asn Thr Ala Gln Asn His Val Trp Ala Asp Thr Leu Asp Asp Met  
 65 70 75 80

Leu Glu Ala Ala Leu Ser Asn Ala Phe Asn Arg Leu Asp Ser Thr Arg  
 85 90 95

Ile Phe Val Pro Ala Ser Arg Ser Gly Ser Thr Glu Lys Trp Thr Val  
 100 105 110

Tyr Ile Asp Ala Phe Gln Gly Ser Tyr Thr Gly Lys Thr Leu Ile Ser  
 115 120 125

Gly Tyr Ala Val Leu Pro Asp Gly Thr Asn Arg Pro Phe His Ile Glu  
 130 135 140

Thr Glu Gln Gln Gly Asp Gly Tyr Ala Ala Met Thr Ala Ala Leu Glu  
 145 150 155 160

Gln Gly Leu Lys Gln Ala Ala Gln Gln Met Val Glu  
 165 170

<210> 2265

<211> 519

<212> DNA

<213> *Neisseria meningitidis*

<400> 2265

atgcgcctct tcccgattgc cgccgccctg acgcttgccg cctgcggtac tgtgcaaagc 60  
 acacaatatt tcgtgttgcc cgacagccgc tacatcgcgc ctgcaacgca aggcggcgaa 120  
 actgccgtcg aagtccgtct tgccgaaccg ctcaaaccgc gcggactggt ctatcaaacc 180  
 gacccctacc gcctcaacac cgacaaaaac cacgtctggg cagacacctt ggacgatatg 240  
 ctggaagcgg cgttgagcaa tgcattcaac cgtttgaca gcacacgcac ctttgttcct 300  
 gcctcacgca gcggcagtac cgaaaaatgg acggtctata tcgacgcatt ccaaggcagc 360  
 tacacgggca aaaccctcat cagcggctac gccgtcctac ccgacggtac gaacagaccc 420  
 ttccatatcg aaaccgaaca gcagggtgac ggctacgccg ccatgaccgc cgcactcgaa 480  
 cagggactga aacaggcggc gcaacagatg gtcgagtaa 519

<210> 2266

<211> 172

<212> PRT

<213> *Neisseria meningitidis*

<400> 2266

Met Arg Leu Phe Pro Ile Ala Ala Ala Leu Thr Leu Ala Ala Cys Gly  
 1 5 10 15

Thr Val Gln Ser Thr Gln Tyr Phe Val Leu Pro Asp Ser Arg Tyr Ile  
 20 25 30

Arg Pro Ala Thr Gln Gly Gly Glu Thr Ala Val Glu Val Arg Leu Ala  
 35 40 45

Glu Pro Leu Lys Arg Gly Gly Leu Val Tyr Gln Thr Asp Pro Tyr Arg  
 50 55 60

Leu Asn Thr Ala Gln Asn His Val Trp Ala Asp Thr Leu Asp Asp Met  
 65 70 75 80

Leu Glu Ala Ala Leu Ser Asn Ala Phe Asn Arg Leu Asp Ser Thr Arg  
 85 90 95

Ile Phe Val Pro Ala Ser Arg Ser Gly Ser Thr Glu Lys Trp Thr Val  
 100 105 110

Tyr Ile Asp Ala Phe Gln Gly Ser Tyr Thr Gly Lys Thr Leu Ile Ser  
 115 120 125

Gly Tyr Ala Val Leu Pro Asp Gly Thr Asn Arg Pro Phe His Ile Glu  
 130 135 140

Thr Glu Gln Gln Gly Asp Gly Tyr Ala Ala Met Thr Ala Ala Leu Glu  
 145 150 155 160

Gln Gly Leu Lys Gln Ala Ala Gln Gln Met Val Glu  
 165 170

<210> 2267

<211> 1074

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 2267

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ttgttttggc gtatcgggaa ttttgcgttt tgcggcgtgg tttctgcagg ttgtttgctt 60
aataataaac attcttatto gtatgcaaag gaaccgcaca ccgtgaaacc gcgtttttat 120
tgggcagcct gcgcgctcct gccggccgcc tgttcgcccg aacctgccgc cgaaaaaact 180
gtatccgccg catcccaagc cgcattccaca cctgtcgcca cgctgaccgt gccgaccgcg 240
cggggcgatg ccgttgtgcc gaagaatccc gaacgcgtcg ccgtgtacga ctgggcggcg 300
ttggatacgc tgaccgagcc gggcgtgaat gtgggcgcaa ccaccgcgcc ggtgcgcggtg 360
gactatttgc agcctgcatt tgacaaggcg gcaacggtgg ggacgctgtt tgagcccgat 420
tgccaatccc tgcaccgcca caatccgcag tttgtcatta ccggcggggc ggtgcgggaa 480
gcgtatgaac agttggcgaa aaacgcgacc accatagatt tgacggtgga caacggcaat 540
atccgcacca gcggcgagaa gcagatggag accctgtcgc ggattttcgg taaggaagcg 600
cgcggtggcg aattgaatgc gcagattgac gcgctgttcg cccaaaagcg cgaagccgcc 660
aaaggcaaaag gacgcgggct ggtgctgtcg gttacaggca acaagggtgc cgccttcggc 720
acgcaatcgc ggttggcaag ttggatacac ggcgacatcg gcctgccgcc cgtggacgaa 780
tctttacgca acgaagggca cgggcagccc gtttcccttcg aatacatcaa agagaaaaac 840
cccggtgga ttttcatcat cgaccgcacc gccgccatcg ggcaggaagg gccggtgccc 900
gtggaagtgt tggataacgc gctggtatgc ggcacgaacg cttggaagcg caagcaaata 960
atcgatcatgc ctgcgcgcaa ctacattgtc gcgggcggcg cgcggcagtt gatacaggcg 1020
gcggaacagt tgaaggcggc gtttgaaaag gcagaaccgc ttgcggcgca gtag 1074
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<210> 2268

<211> 357

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 2268

```
Leu Phe Cys Arg Ile Gly Asn Phe Ala Phe Cys Gly Val Val Ser Ala
  1             5             10             15
```

```
Gly Cys Leu Leu Asn Asn Lys His Ser Tyr Ser Tyr Ala Lys Glu Pro
          20             25             30
```

```
His Thr Val Lys Pro Arg Phe Tyr Trp Ala Ala Cys Ala Val Leu Pro
      35             40             45
```

```
Ala Ala Cys Ser Pro Glu Pro Ala Ala Glu Lys Thr Val Ser Ala Ala
      50             55             60
```

```
Ser Gln Ala Ala Ser Thr Pro Val Ala Thr Leu Thr Val Pro Thr Ala
      65             70             75             80
```

```
Arg Gly Asp Ala Val Val Pro Lys Asn Pro Glu Arg Val Ala Val Tyr
          85             90             95
```

```
Asp Trp Ala Ala Leu Asp Thr Leu Thr Glu Pro Gly Val Asn Val Gly
      100            105            110
```

```
Ala Thr Thr Ala Pro Val Arg Val Asp Tyr Leu Gln Pro Ala Phe Asp
      115            120            125
```

```
Lys Ala Ala Thr Val Gly Thr Leu Phe Glu Pro Asp Cys Glu Ser Leu
      130            135            140
```

```
His Arg His Asn Pro Gln Phe Val Ile Thr Gly Gly Pro Gly Ala Glu
      145            150            155            160
```

Ala Tyr Glu Gln Leu Ala Lys Asn Ala Thr Thr Ile Asp Leu Thr Val  
                     165                                    170                                    175  
 Asp Asn Gly Asn Ile Arg Thr Ser Gly Glu Lys Gln Met Glu Thr Leu  
                     180                                    185                                    190  
 Ser Arg Ile Phe Gly Lys Glu Ala Arg Val Ala Glu Leu Asn Ala Gln  
                     195                                    200                                    205  
 Ile Asp Ala Leu Phe Ala Gln Lys Arg Glu Ala Ala Lys Gly Lys Gly  
                     210                                    215                                    220  
 Arg Gly Leu Val Leu Ser Val Thr Gly Asn Lys Val Ser Ala Phe Gly  
                     225                                    230                                    235                                    240  
 Thr Gln Ser Arg Leu Ala Ser Trp Ile His Gly Asp Ile Gly Leu Pro  
                     245                                    250                                    255  
 Pro Val Asp Glu Ser Leu Arg Asn Glu Gly His Gly Gln Pro Val Ser  
                     260                                    265                                    270  
 Phe Glu Tyr Ile Lys Glu Lys Asn Pro Gly Trp Ile Phe Ile Ile Asp  
                     275                                    280                                    285  
 Arg Thr Ala Ala Ile Gly Gln Glu Gly Pro Ala Ala Val Glu Val Leu  
                     290                                    295                                    300  
 Asp Asn Ala Leu Val Cys Gly Thr Asn Ala Trp Lys Arg Lys Gln Ile  
                     305                                    310                                    315                                    320  
 Ile Val Met Pro Ala Ala Asn Tyr Ile Val Ala Gly Gly Ala Arg Gln  
                     325                                    330                                    335  
 Leu Ile Gln Ala Ala Glu Gln Leu Lys Ala Ala Phe Glu Lys Ala Glu  
                     340                                    345                                    350  
 Pro Val Ala Ala Gln  
                     355

<210> 2269

<211> 1068

<212> DNA

<213> *Neisseria meningitidis*

<400> 2269

ttgttttgcc gtatcgggaa ttttgcgttt tgcggcgtgg tttctgcagg ttgtttgctt 60  
 aataataaac attcttattc gtatgcaaag gaaccgcaca ccgtgaaacc gcgtttttat 120  
 tgggcagcct gcgccgtcct gctgaccgcc tgttcgcccg aacctgccgc cgaaaaaact 180  
 gtatccgccg catccgcacg tgccgccacg ctgaccgtgc cgaccgcgcg gggcgatgcc 240  
 gttgtgccga agaatcccgga acgcgtcgcc gtgtacgact gggcggcgtt ggatacgctg 300  
 accgaattgg gcgtgaatgt gggcgcaacc accgcgcgcg tgcgcgtgga ttatttgca 360  
 cctgcatttg acaaggcggc aacggtgggg acgctgttcg agcccgatta cgaagccctg 420  
 caccgctaca atcctcagct tgtcattacc ggcgggcccg gcgcggaagc gtatgaacag 480  
 ttagcgaaaa acgcgaccac catagatctg acggtggaca acggcaatat ccgcaccagc 540  
 ggcgaaaagc agatggagac cttggcgcgg attttcggca aggaagcgcg cgcggcggaa 600

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ttgaaggcgc agattgacgc gctgttcgcc caaacgcgcg aagccgcca aggcaaagga 660
cgcgggctgg tgctgtcggg tacgggcaac aaggtgtccg ccttcggcac gcagtcgcgg 720
ttggcaagtt ggatacacgg cgacatcggc ctaccgcctg tagacgaatc tttacgcaac 780
gaggggcacg ggcagcctgt ttccttcgaa tacatcaaag agaaaaaccc cgattggatt 840
ttcatcatcg accgtaccgc cgccatcggg caggaagggc cggcggctgt cgaagtattg 900
gataacgcgc tggtagcgcg cacgaacgct tggaaagcga agcaaatac cgtcatgcct 960
gccgcgaact acattgtcgc gggcggcgcg cggcagttga ttcaggcggc ggagcagttg 1020
aaggcggcgt ttaaaaaggc agaaccggtt gcggcgggga aaaagtag 1068

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<210> 2270

<211> 355

<212> PRT

<213> Neisseria meningitidis

<400> 2270

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Leu Phe Cys Arg Ile Gly Asn Phe Ala Phe Cys Gly Val Val Ser Ala
  1                      5                      10                      15

```

```

Gly Cys Leu Leu Asn Asn Lys His Ser Tyr Ser Tyr Ala Lys Glu Pro
                20                      25                      30

```

```

His Thr Val Lys Pro Arg Phe Tyr Trp Ala Ala Cys Ala Val Leu Leu
    35                      40                      45

```

```

Thr Ala Cys Ser Pro Glu Pro Ala Ala Glu Lys Thr Val Ser Ala Ala
    50                      55                      60

```

```

Ser Ala Ser Ala Ala Thr Leu Thr Val Pro Thr Ala Arg Gly Asp Ala
    65                      70                      75                      80

```

```

Val Val Pro Lys Asn Pro Glu Arg Val Ala Val Tyr Asp Trp Ala Ala
                85                      90                      95

```

```

Leu Asp Thr Leu Thr Glu Leu Gly Val Asn Val Gly Ala Thr Thr Ala
    100                      105                      110

```

```

Pro Val Arg Val Asp Tyr Leu Gln Pro Ala Phe Asp Lys Ala Ala Thr
    115                      120                      125

```

```

Val Gly Thr Leu Phe Glu Pro Asp Tyr Glu Ala Leu His Arg Tyr Asn
    130                      135                      140

```

```

Pro Gln Leu Val Ile Thr Gly Gly Pro Gly Ala Glu Ala Tyr Glu Gln
    145                      150                      155                      160

```

```

Leu Ala Lys Asn Ala Thr Thr Ile Asp Leu Thr Val Asp Asn Gly Asn
                165                      170                      175

```

```

Ile Arg Thr Ser Gly Glu Lys Gln Met Glu Thr Leu Ala Arg Ile Phe
    180                      185                      190

```

```

Gly Lys Glu Ala Arg Ala Ala Glu Leu Lys Ala Gln Ile Asp Ala Leu
    195                      200                      205

```

```

Phe Ala Gln Thr Arg Glu Ala Ala Lys Gly Lys Gly Arg Gly Leu Val
    210                      215                      220

```



Leu Ser Val Thr Gly Asn Lys Val Ser Ala Phe Gly Thr Gln Ser Arg  
225 230 235 240

Leu Ala Ser Trp Ile His Gly Asp Ile Gly Leu Pro Pro Val Asp Glu  
245 250 255

Ser Leu Arg Asn Glu Gly His Gly Gln Pro Val Ser Phe Glu Tyr Ile  
260 265 270

Lys Glu Lys Asn Pro Asp Trp Ile Phe Ile Ile Asp Arg Thr Ala Ala  
275 280 285

Ile Gly Gln Glu Gly Pro Ala Ala Val Glu Val Leu Asp Asn Ala Leu  
290 295 300

Val Arg Gly Thr Asn Ala Trp Lys Arg Lys Gln Ile Ile Val Met Pro  
305 310 315 320

Ala Ala Asn Tyr Ile Val Ala Gly Gly Ala Arg Gln Leu Ile Gln Ala  
325 330 335

Ala Glu Gln Leu Lys Ala Ala Phe Lys Lys Ala Glu Pro Val Ala Ala  
340 345 350

Gly Lys Lys  
355

<210> 2271

<211> 1068

<212> DNA

<213> Neisseria meningitidis

<400> 2271

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ttgttttgcc gtatcgggaa ttttgcgttt tgcggcgtgg tttctgcagg ttgtttgctt 60
aataataaac attcttattc gtatgcaaag gaaccgcaca ccgtgaaacc gcgtttttat 120
tgggcagcct gcgcgctcct gctgaccgcc tgttcgcccg aacctgccgc cgaaaaaact 180
gtatccgcgc catccgcac tgccgccaca ctgaccgtgc cgaccgcgcg gggcgatgcc 240
gttgtgcga agaatcccga acgcgtcgcc gtgtacgact gggcggcgtt ggatacgtg 300
accgaattgg gtgtgaatgt gggcgcaacc accgcgcgcg tgcgcgtgga ttatttgag 360
cctgcatttg acaaggcggc aacggtgggg acgctgttcg agcccgatta cgaagccctg 420
caccgctaca atcctcagct tgcattacc ggcgggcccg gcgcggaagc gtatgaacag 480
ttggcgaaaa acgcgaccac catagatctg acggtggaca acggcaatat ccgcaccagc 540
ggcgaaaaagc agatggagac cttggcgcgg attttcgga aggaagcgcg cgcgcgga 600
ttgaaggcgc agattgacgc gctgttcgcc caaacgcgcg aagccgccaa aggcaaagga 660
cgcgggctgg tgctgtcggg tacgggcaac aaggtgtccg ccttcggcac gcagtcgcgg 720
ttggcaagtt ggatacacgg cgacatcggc ctaccgcctg tagacgaatc ttacgcaac 780
gaggggcacg ggcagcctgt ttccttcgaa tacatcaaag agaaaaacce cgattggatt 840
ttcatcatcg accgtaccgc cgccatcggg caggaagggc cggcggtgt cgaagtattg 900
gataacgcgc tggtagcggc cacgaacgct tggaagcgca agcaaatcat cgtcatgcct 960
gccgcgaact acattgtcgc gggcggtcgc cggcagttga ttcaggcggc ggagcagttg 1020
aaggaggcgt ttgaaaaggc agaaccggtt gcggcgggga aagagtag 1068

```

<210> 2272

<211> 355

<212> PRT

<213> Neisseria meningitidis

<400> 2272

Leu Phe Cys Arg Ile Gly Asn Phe Ala Phe Cys Gly Val Val Ser Ala  
1 5 10 15  
Gly Cys Leu Leu Asn Asn Lys His Ser Tyr Ser Tyr Ala Lys Glu Pro  
20 25 30  
His Thr Val Lys Pro Arg Phe Tyr Trp Ala Ala Cys Ala Val Leu Leu  
35 40 45  
Thr Ala Cys Ser Pro Glu Pro Ala Ala Glu Lys Thr Val Ser Ala Ala  
50 55 60  
Ser Ala Ser Ala Ala Thr Leu Thr Val Pro Thr Ala Arg Gly Asp Ala  
65 70 75 80  
Val Val Pro Lys Asn Pro Glu Arg Val Ala Val Tyr Asp Trp Ala Ala  
85 90 95  
Leu Asp Thr Leu Thr Glu Leu Gly Val Asn Val Gly Ala Thr Thr Ala  
100 105 110  
Pro Val Arg Val Asp Tyr Leu Gln Pro Ala Phe Asp Lys Ala Ala Thr  
115 120 125  
Val Gly Thr Leu Phe Glu Pro Asp Tyr Glu Ala Leu His Arg Tyr Asn  
130 135 140  
Pro Gln Leu Val Ile Thr Gly Gly Pro Gly Ala Glu Ala Tyr Glu Gln  
145 150 155 160  
Leu Ala Lys Asn Ala Thr Thr Ile Asp Leu Thr Val Asp Asn Gly Asn  
165 170 175  
Ile Arg Thr Ser Gly Glu Lys Gln Met Glu Thr Leu Ala Arg Ile Phe  
180 185 190  
Gly Lys Glu Ala Arg Ala Ala Glu Leu Lys Ala Gln Ile Asp Ala Leu  
195 200 205  
Phe Ala Gln Thr Arg Glu Ala Ala Lys Gly Lys Gly Arg Gly Leu Val  
210 215 220  
Leu Ser Val Thr Gly Asn Lys Val Ser Ala Phe Gly Thr Gln Ser Arg  
225 230 235 240  
Leu Ala Ser Trp Ile His Gly Asp Ile Gly Leu Pro Pro Val Asp Glu  
245 250 255  
Ser Leu Arg Asn Glu Gly His Gly Gln Pro Val Ser Phe Glu Tyr Ile  
260 265 270  
Lys Glu Lys Asn Pro Asp Trp Ile Phe Ile Ile Asp Arg Thr Ala Ala

275

280

285

Ile Gly Gln Glu Gly Pro Ala Ala Val Glu Val Leu Asp Asn Ala Leu  
290 295 300

Val Arg Gly Thr Asn Ala Trp Lys Arg Lys Gln Ile Ile Val Met Pro  
305 310 315 320

Ala Ala Asn Tyr Ile Val Ala Gly Gly Ser Arg Gln Leu Ile Gln Ala  
325 330 335

Ala Glu Gln Leu Lys Glu Ala Phe Glu Lys Ala Glu Pro Val Ala Ala  
340 345 350

Gly Lys Glu  
355

&lt;210&gt; 2273

&lt;211&gt; 396

&lt;212&gt; DNA

&lt;213&gt; Neisseria gonorrhoeae

&lt;400&gt; 2273

aattttctcct gccgcgccga tgatgttttt gacgatatct gcagtgccgt tgaaggcttc 60  
ggcggcattg cccgatctgt ccagctcggg gctgtatcgg gtggcgcggt tgaatccgtc 120  
gcctactcct tgcgtcagca tagcgccggc attgtggaaa cggtcggcaa gccgttgtcc 180  
ggtgctgcgg ttgtcggta gggtgaggcg gatattttgg gcaacgcctt ttatgtcgta 240  
gctgtatata tccctcgcgc ctttgggagc gggatagccg ccgccctgtg gcccgtcata 300  
gccgtcggcg ggatggtgtt cgtatccgtc ccaatggatg cggtaaaggc tgaatccgtc 360  
aacgggacta ccggttcgt cagaatcgga atgtga 396

&lt;210&gt; 2274

&lt;211&gt; 131

&lt;212&gt; PRT

&lt;213&gt; Neisseria gonorrhoeae

&lt;400&gt; 2274

Asn Phe Ser Cys Arg Ala Asp Asp Val Phe Asp Asp Ile Cys Ser Ala  
1 5 10 15

Val Glu Gly Phe Gly Gly Ile Ala Arg Ser Val Gln Leu Gly Ala Val  
20 25 30

Ser Gly Gly Ala Phe Glu Ser Val Ala Tyr Ser Leu Arg Gln His Ser  
35 40 45

Ala Gly Ile Val Glu Thr Val Gly Lys Pro Leu Ser Gly Ala Ala Val  
50 55 60

Val Gly Gln Val Glu Ala Asp Ile Leu Gly Asn Ala Phe Tyr Val Val  
65 70 75 80

Ala Val Tyr Ile Pro Arg Ala Phe Gly Ser Gly Ile Ala Ala Ala Leu  
85 90 95

Trp Pro Val Ile Ala Val Gly Gly Met Val Phe Val Ser Val Pro Met  
 100 105 110

Asp Ala Val Lys Ala Glu Ser Val Asn Gly Thr Thr Gly Phe Val Arg  
 115 120 125

Ile Gly Met  
 130

<210> 2275  
 <211> 492  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2275  
 atgatgttga aaaaattcgt actcggcggt attgccgcat tggttttggc ggcctgcggc 60  
 gggttcggaag gcggcagcgg agcgnnnnnn nnnnnnaatt tctcctgcag cgccgatgat 120  
 gtttttaacg atatctgcag tgcggttgaa ggcttcggcg gcattgcccg atctgtccag 180  
 ctcggggctg tategggtgg cgcgtttgaa tccgtcgctt actccttgcg tcagcatact 240  
 accggcattg tggaaacggt cggcaagccg ttgtccgggt ctgcggttgt cggtcagggt 300  
 gaggcggata ttttgggcaa cgccttttat gtcgtagctg tatatatccc tcgcgccttt 360  
 gggagcggga tagccgccc cctgtggccc gtcatagcgg tcggcgggat ggtgttcgta 420  
 tccgtcccaa tggatgcggt aaaggctaaa tccgtcaacg ggactaccgg cttcatcaga 480  
 atcggaatgt ga 492

<210> 2276  
 <211> 163  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2276  
 Met Met Leu Lys Lys Phe Val Leu Gly Gly Ile Ala Ala Leu Val Leu  
 1 5 10 15  
 Ala Ala Cys Gly Gly Ser Glu Gly Gly Ser Gly Ala Xaa Xaa Xaa Xaa  
 20 25 30  
 Asn Phe Ser Cys Ser Ala Asp Asp Val Phe Asn Asp Ile Cys Ser Ala  
 35 40 45  
 Val Glu Gly Phe Gly Gly Ile Ala Arg Ser Val Gln Leu Gly Ala Val  
 50 55 60  
 Ser Gly Gly Ala Phe Glu Ser Val Ala Tyr Ser Leu Arg Gln His Thr  
 65 70 75 80  
 Thr Gly Ile Val Glu Thr Val Gly Lys Pro Leu Ser Gly Ala Ala Val  
 85 90 95  
 Val Gly Gln Val Glu Ala Asp Ile Leu Gly Asn Ala Phe Tyr Val Val  
 100 105 110  
 Ala Val Tyr Ile Pro Arg Ala Phe Gly Ser Gly Ile Ala Ala Ala Leu  
 115 120 125

Trp Pro Val Ile Ala Val Gly Gly Met Val Phe Val Ser Val Pro Met  
130 135 140

Asp Ala Val Lys Ala Lys Ser Val Asn Gly Thr Thr Gly Phe Ile Arg  
145 150 155 160

Ile Gly Met

<210> 2277

<211> 396

<212> DNA

<213> Neisseria meningitidis

<400> 2277

aattttctcct gccgcgccga tgatgttttt gacgatatct gcagtgccgt tgaaagcttc 60  
ggcggcattg cccgatctgt ccagctcggg gctgtatcgg gtggcgcggt tgaatccgtc 120  
gcctactcct tgcgtcagca tactaccggt attgtggaaa cggtcgacaa gccgttggtcc 180  
ggtgctgcgg ttgtcgggtca ggttgaggcg gatatttttg gcaacgcctt ttatgtcgta 240  
gctgtatata tccctcgcgc ctttgggagc gggatagccg ccgccctgtg gcccgtcata 300  
gccgtcggcg ggatggtggt cgtatccgtc ccaatggatg cggtaaaggc tgaatccgtc 360  
aacgggacta ccggcttcat cagaatcgga atgtga 396

<210> 2278

<211> 131

<212> PRT

<213> Neisseria meningitidis

<400> 2278

Asn Phe Ser Cys Arg Ala Asp Asp Val Phe Asp Asp Ile Cys Ser Ala  
1 5 10 15

Val Glu Ser Phe Gly Gly Ile Ala Arg Ser Val Gln Leu Gly Ala Val  
20 25 30

Ser Gly Gly Ala Phe Glu Ser Val Ala Tyr Ser Leu Arg Gln His Thr  
35 40 45

Thr Gly Ile Val Glu Thr Val Asp Lys Pro Leu Ser Gly Ala Ala Val  
50 55 60

Val Gly Gln Val Glu Ala Asp Ile Leu Gly Asn Ala Phe Tyr Val Val  
65 70 75 80

Ala Val Tyr Ile Pro Arg Ala Phe Gly Ser Gly Ile Ala Ala Ala Leu  
85 90 95

Trp Pro Val Ile Ala Val Gly Gly Met Val Phe Val Ser Val Pro Met  
100 105 110

Asp Ala Val Lys Ala Glu Ser Val Asn Gly Thr Thr Gly Phe Ile Arg  
115 120 125

Ile Gly Met

<210> 2279  
 <211> 705  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 2279  
 atgaaatcca gacacctcgc cctcgccctc ggcggttgccg ccctgttcgc ccttgccgcg 60  
 tgcgacagca aagtccaaac cagcgtcccc gccgacagcg cgcttgccgc ttcggcagcc 120  
 gccgccccgg caggactggt cgaagggcaa aactacaccg tccttgccaa cccgattccc 180  
 caacagcagg caggcaaggt tgaagtgcct gagtttttcg gctatttttg tccgcactgc 240  
 gccgcctcgc aacctgtttt gagcaaacac gccaaagtctt ttaaagacga tatgtacctg 300  
 cgtaccgaac acgtcgtctg gcagaaagaa atgctgcccgc tggcacgcct cgccgccgcc 360  
 gtcgatatgg ctgccgccga aagcaaaagat gtggcgaaaca gccatatttt cgatgcgatg 420  
 gtcaaccaaaa aaatcaagct gcaagagccg gaagtcctca aaaaatggct gggcgaaaca 480  
 accgcctttg acggcaaaaa agtccttgcc gcctacgaat cccccgaaaag tcaggcgcgcg 540  
 gccggcaaaa tgcaggagct gaccgaaacc ttccaaatcg acggtacgcc cacggttatc 600  
 gtcggcggca aatataaagt cgaatttgcc gactgggagt ccggtatgaa caccatcgac 660  
 cttttggcgg acaaagtacg tgaagaacaa aaagccgcgc agtag 705

<210> 2280  
 <211> 234  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 2280  
 Met Lys Ser Arg His Leu Ala Leu Ala Leu Gly Val Ala Ala Leu Phe  
     1                    5                    10                    15  
 Ala Leu Ala Ala Cys Asp Ser Lys Val Gln Thr Ser Val Pro Ala Asp  
             20                    25                    30  
 Ser Ala Pro Ala Ala Ser Ala Ala Ala Pro Ala Gly Leu Val Glu  
             35                    40                    45  
 Gly Gln Asn Tyr Thr Val Leu Ala Asn Pro Ile Pro Gln Gln Gln Ala  
             50                    55                    60  
 Gly Lys Val Glu Val Leu Glu Phe Phe Gly Tyr Phe Cys Pro His Cys  
             65                    70                    75                    80  
 Ala Arg Leu Glu Pro Val Leu Ser Lys His Ala Lys Ser Phe Lys Asp  
                     85                    90                    95  
 Asp Met Tyr Leu Arg Thr Glu His Val Val Trp Gln Lys Glu Met Leu  
             100                    105                    110  
 Pro Leu Ala Arg Leu Ala Ala Ala Val Asp Met Ala Ala Ala Glu Ser  
             115                    120                    125  
 Lys Asp Val Ala Asn Ser His Ile Phe Asp Ala Met Val Asn Gln Lys  
             130                    135                    140  
 Ile Lys Leu Gln Glu Pro Glu Val Leu Lys Lys Trp Leu Gly Glu Gln

145 150 155 160

Thr Ala Phe Asp Gly Lys Lys Val Leu Ala Ala Tyr Glu Ser Pro Glu  
165 170 175

Ser Gln Ala Arg Ala Gly Lys Met Gln Glu Leu Thr Glu Thr Phe Gln  
180 185 190

Ile Asp Gly Thr Pro Thr Val Ile Val Gly Gly Lys Tyr Lys Val Glu  
195 200 205

Phe Ala Asp Trp Glu Ser Gly Met Asn Thr Ile Asp Leu Leu Ala Asp  
210 215 220

Lys Val Arg Glu Glu Gln Lys Ala Ala Gln  
225 230

<210> 2281  
<211> 699  
<212> DNA  
<213> Neisseria meningitidis

<400> 2281  
atgaaatcca gacaccttgc cctcggcggtt gccgccctgt tcgcccttgc cgcgtgcgac 60  
agcaaagtcc aaaccagcgt ccccgccgac agcgcgcctg ccgcttcggc agccgcgcgc 120  
ccggcagggc tggtcgaagg gcaaaactat accgtccttg ccaacccgat tccccaacag 180  
caggcaggca aagtcgaagt ccttgagttt ttcggctatt tctgtccgca ctgcgcccac 240  
ctcgaacctg ttttaagcaa acacgccaag tcttttaaag acgatatgta cctgcgtacc 300  
gaacacgtcg tctggcagaa agaaatgctg acgctggcac gcctcgcgcg cgcgctcgat 360  
atggctgccc cgcacagcaa agatgtggcg aacagccata ttttcgatgc gatgggtcaac 420  
caaaaaatca agctgcaaaa tccggaagtc ctcaaaaaat ggctggggcg acaaaccgcc 480  
tttgacggca aaaaagtcct tgccgcctac gagtcccccg aaagccaggc gcgcgcccgc 540  
aaaatgcagg agctgaccga aaccttccaa atcgacggta cgcgccaggt tatcgtcggc 600  
ggtaaatata aagttgaatt tgccgactgg gagtccggta tgaacaccat cgaccttttg 660  
gcggacaaag tacgcgaaga acaaaaagcc gcgcagtaa 699

<210> 2282  
<211> 232  
<212> PRT  
<213> Neisseria meningitidis

<400> 2282  
Met Lys Ser Arg His Leu Ala Leu Gly Val Ala Ala Leu Phe Ala Leu  
1 5 10 15

Ala Ala Cys Asp Ser Lys Val Gln Thr Ser Val Pro Ala Asp Ser Ala  
20 25 30

Pro Ala Ala Ser Ala Ala Ala Pro Ala Gly Leu Val Glu Gly Gln  
35 40 45

Asn Tyr Thr Val Leu Ala Asn Pro Ile Pro Gln Gln Gln Ala Gly Lys  
50 55 60

Val Glu Val Leu Glu Phe Phe Gly Tyr Phe Cys Pro His Cys Ala His

65		70		75		80
Leu Glu Pro Val	Leu Ser Lys His Ala Lys Ser Phe Lys Asp Asp Met					
	85		90		95	
Tyr Leu Arg Thr	Glu His Val Val Trp Gln Lys Glu Met Leu Thr Leu					
	100		105		110	
Ala Arg Leu Ala	Ala Ala Val Asp Met Ala Ala Ala Asp Ser Lys Asp					
	115		120		125	
Val Ala Asn Ser	His Ile Phe Asp Ala Met Val Asn Gln Lys Ile Lys					
	130		135		140	
Leu Gln Asn Pro	Glu Val Leu Lys Lys Trp Leu Gly Glu Gln Thr Ala					
	145		150		155	160
Phe Asp Gly Lys	Lys Val Leu Ala Ala Tyr Glu Ser Pro Glu Ser Gln					
	165		170		175	
Ala Arg Ala Asp	Lys Met Gln Glu Leu Thr Glu Thr Phe Gln Ile Asp					
	180		185		190	
Gly Thr Pro Thr	Val Ile Val Gly Gly Lys Tyr Lys Val Glu Phe Ala					
	195		200		205	
Asp Trp Glu Ser	Gly Met Asn Thr Ile Asp Leu Leu Ala Asp Lys Val					
	210		215		220	
Arg Glu Glu Gln	Lys Ala Ala Gln					
	225		230			

<210> 2283  
 <211> 699  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2283  
 atgaaatcca aacacctcgc cctcggcggt gccgccctgt tcgcacttgc cgcgtgcgac 60  
 agcaaagtcc aaaccagcgt ccccgccgac agcgcgcctg ccgcttcggc agccgccgcc 120  
 ccggcagggc tggtcgaagg gcaaaactat actgtccttg ccaacccgat tccccaacag 180  
 caggcaggca aagtcgaagt ccttgagttt ttcggctatt tctgtccgca ctgcgcccac 240  
 ctcgaacctg ttttaagcaa acacgccaaag tcttttaaag acgatatgta cctgcgtacc 300  
 gaacacgtcg tctggcagaa agaaatgctg acgctcgcac gcctcgccgc cgccgtcgat 360  
 atggctgccg ccgacagcaa agatgtggcg aacagccata ttttcgatgc gatgggtcaac 420  
 caaaaaatca agctgcaaga gccggaagtc ctcaaaaaat ggctggggcga acaaaccgcc 480  
 tttgacggca aaaaagtcct tgccgcttac gaatctcccg aaagccaggc gcgcgccgac 540  
 aaaatgcagg agctgaccga aaccttccaa atcgacggta cgcccacggt tatcgtcggc 600  
 ggcaaatata aagtcgaatt tgccgactgg gagtccggta tgaacaccat cgaccttttg 660  
 gcggacaaaag tacgcgaaga acaaaaagcc gcgcactaa 699

<210> 2284  
 <211> 232  
 <212> PRT  
 <213> Neisseria meningitidis



<400> 2284

Met Lys Ser Lys His Leu Ala Leu Gly Val Ala Ala Leu Phe Ala Leu  
1 5 10 15  
Ala Ala Cys Asp Ser Lys Val Gln Thr Ser Val Pro Ala Asp Ser Ala  
20 25 30  
Pro Ala Ala Ser Ala Ala Ala Ala Pro Ala Gly Leu Val Glu Gly Gln  
35 40 45  
Asn Tyr Thr Val Leu Ala Asn Pro Ile Pro Gln Gln Gln Ala Gly Lys  
50 55 60  
Val Glu Val Leu Glu Phe Phe Gly Tyr Phe Cys Pro His Cys Ala His  
65 70 75 80  
Leu Glu Pro Val Leu Ser Lys His Ala Lys Ser Phe Lys Asp Asp Met  
85 90 95  
Tyr Leu Arg Thr Glu His Val Val Trp Gln Lys Glu Met Leu Thr Leu  
100 105 110  
Ala Arg Leu Ala Ala Ala Val Asp Met Ala Ala Ala Asp Ser Lys Asp  
115 120 125  
Val Ala Asn Ser His Ile Phe Asp Ala Met Val Asn Gln Lys Ile Lys  
130 135 140  
Leu Gln Glu Pro Glu Val Leu Lys Lys Trp Leu Gly Glu Gln Thr Ala  
145 150 155 160  
Phe Asp Gly Lys Lys Val Leu Ala Ala Tyr Glu Ser Pro Glu Ser Gln  
165 170 175  
Ala Arg Ala Asp Lys Met Gln Glu Leu Thr Glu Thr Phe Gln Ile Asp  
180 185 190  
Gly Thr Pro Thr Val Ile Val Gly Gly Lys Tyr Lys Val Glu Phe Ala  
195 200 205  
Asp Trp Glu Ser Gly Met Asn Thr Ile Asp Leu Leu Ala Asp Lys Val  
210 215 220  
Arg Glu Glu Gln Lys Ala Ala His  
225 230

<210> 2285

<211> 420

<212> DNA

<213> Neisseria gonorrhoeae

<400> 2285

gtgctacact agacatcccg atttgacacag aaaggttctc ccgtgaacaa aaccctcatc 60  
ctcgcccttt ccgcctgtt cagcctgacc gcgtgcagcg tcgaacgcgt ctcgctgttt 120  
ccctctaca aactcaaat catccaaggc aacgaactcg aaccgcgcgc cgttgccgcc 180

ctgcgccccg gcatgaccaa agaccaagtc ctgctcctgc tcggcagccc catactgcgc 240  
gacgctttcc ataccgaccg ctgggactat accttcaaca cctcccgcaa cggcatcatc 300  
aaagaacgca gcaacctgac cgtctatattt gaaaacggcg tactcgtccg caccgaaggc 360  
gacgcccctcc aaaatgccgc cgaagccctc cgcgcgaaac aaaacgcaga caaacaataa 420

<210> 2286  
<211> 138  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 2286  
Val Leu His Thr Ser Arg Phe Ala Gln Lys Gly Ser Pro Val Asn Lys  
1 5 10 15  
Thr Leu Ile Leu Ala Leu Ser Ala Leu Phe Ser Leu Thr Ala Cys Ser  
20 25 30  
Val Glu Arg Val Ser Leu Phe Pro Ser Tyr Lys Leu Lys Ile Ile Gln  
35 40 45  
Gly Asn Glu Leu Glu Pro Arg Ala Val Ala Ala Leu Arg Pro Gly Met  
50 55 60  
Thr Lys Asp Gln Val Leu Leu Leu Leu Gly Ser Pro Ile Leu Arg Asp  
65 70 75 80  
Ala Phe His Thr Asp Arg Trp Asp Tyr Thr Phe Asn Thr Ser Arg Asn  
85 90 95  
Gly Ile Ile Lys Glu Arg Ser Asn Leu Thr Val Tyr Phe Glu Asn Gly  
100 105 110  
Val Leu Val Arg Thr Glu Gly Asp Ala Leu Gln Asn Ala Ala Glu Ala  
115 120 125  
Leu Arg Ala Lys Gln Asn Ala Asp Lys Gln  
130 135

<210> 2287  
<211> 420  
<212> DNA  
<213> Neisseria meningitidis

<400> 2287  
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ccctcgtaca aactcaaaat catacagggc aacgaactcg aaccgcgcgc cgttgccgcc 180  
ctccgccccg gcatgaccaa agaccaagtc ctgctcctgc tcggcagccc catactgcgc 240  
gacgcattcc ataccgaccg ctgggactat accttcaaca cctcccgcaa cggcatcatc 300  
aaagaacgca gcaatctgac cgtctatattt gaaaacggcg tactcgtccg caccgaaggc 360  
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<210> 2288  
<211> 139

<212> PRT  
<213> Neisseria meningitidis

<400> 2288

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Lys Thr Leu Ile Leu Ala Leu Ser Ala Leu Leu Gly Leu Ala Ala Cys  
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Ser Ala Glu Arg Val Ser Leu Phe Pro Ser Tyr Lys Leu Lys Ile Ile  
35 40 45  
Gln Gly Asn Glu Leu Glu Pro Arg Ala Val Ala Ala Leu Arg Pro Gly  
50 55 60  
Met Thr Lys Asp Gln Val Leu Leu Leu Leu Gly Ser Pro Ile Leu Arg  
65 70 75 80  
Asp Ala Phe His Thr Asp Arg Trp Asp Tyr Thr Phe Asn Thr Ser Arg  
85 90 95  
Asn Gly Ile Ile Lys Glu Arg Ser Asn Leu Thr Val Tyr Phe Glu Asn  
100 105 110  
Gly Val Leu Val Arg Thr Glu Gly Asp Val Leu Gln Asn Ala Ala Glu  
115 120 125  
Ala Leu Lys Asp Arg Gln Asn Thr Asp Lys Pro  
130 135

<210> 2289  
<211> 420  
<212> DNA  
<213> Neisseria meningitidis

<400> 2289

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ccctcgtaca aactcaaaat catacagggc aacgaactcg aacctgcgcg cgtcgccctcc 180  
ctccgccccg gtatgaccaa agaccaagtc ctgctcctgc tcggcagccc catactgcgc 240  
gacgcattcc ataccgaccg ctgggactat accttcaaca cctcccgcaa cggcatcatc 300  
aaagaccgaa gcaatctgac cgtctatattt gaaaacggcg tgctcgtcgc caccgaaggc 360  
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<210> 2290  
<211> 139  
<212> PRT  
<213> Neisseria meningitidis

<400> 2290

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Ser Val Glu Arg Val Ser Leu Phe Pro Ser Tyr Lys Leu Lys Ile Ile		
35	40	45
Gln Gly Asn Glu Leu Glu Pro Arg Ala Val Ala Ser Leu Arg Pro Gly		
50	55	60
Met Thr Lys Asp Gln Val Leu Leu Leu Leu Gly Ser Pro Ile Leu Arg		
65	70	75
Asp Ala Phe His Thr Asp Arg Trp Asp Tyr Thr Phe Asn Thr Ser Arg		
85	90	95
Asn Gly Ile Ile Lys Asp Arg Ser Asn Leu Thr Val Tyr Phe Glu Asn		
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Gly Val Leu Val Arg Thr Glu Gly Asn Ala Leu Gln Asn Ala Ala Glu		
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Ala Leu Arg Val Lys Gln Asn Ala Asp Lys Gln		
130	135	

<210> 2291  
 <211> 1200  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

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 ttcgggcaag tggccggcgg cgcggtgtcc gacatcaaag ggcgcaaacc cgtcgccctg 240  
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 gtggtcatgg cggcaaccgt gatggcggca accatgaccg cgtccgcctc ttgcggcatt 1140  
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<210> 2292  
 <211> 399  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 2292

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			20					25					30		
Ala	Ile	Pro	Glu	Met	Ala	Gln	Pro	Leu	Asn	Ala	Asp	Ile	His	Arg	Ile
		35					40					45			
Glu	Ser	Leu	Ser	Leu	Phe	Met	Phe	Gly	Thr	Ala	Phe	Gly	Gln	Val	Ala
	50					55					60				
Gly	Gly	Ala	Val	Ser	Asp	Ile	Lys	Gly	Arg	Lys	Pro	Val	Ala	Leu	Thr
65					70					75					80
Gly	Leu	Ile	Val	Tyr	Cys	Leu	Ala	Val	Ala	Ala	Ile	Val	Phe	Ala	Ser
					85					90					95
Ser	Thr	Glu	Gln	Leu	Leu	Asn	Leu	Arg	Ala	Val	Gln	Ala	Phe	Gly	Ala
			100					105					110		
Gly	Met	Ala	Val	Val	Ile	Val	Gly	Ala	Met	Val	Arg	Asp	Tyr	Tyr	Ser
		115					120					125			
Gly	Arg	Lys	Ala	Ala	Gln	Met	Phe	Ala	Leu	Ile	Gly	Ile	Ile	Leu	Met
	130					135					140				
Val	Val	Pro	Leu	Ala	Ala	Pro	Met	Val	Gly	Ala	Leu	Leu	Gln	Gly	Leu
145					150					155					160
Gly	Gly	Trp	Arg	Ala	Ile	Phe	Val	Phe	Leu	Ala	Ala	Tyr	Ser	Pro	Val
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Leu	Pro	Gly	Leu	Val	Gln	Tyr	Phe	Leu	Pro	Asn	Pro	Ala	Val	Gly	Gly
			180					185					190		
Lys	Ile	Gly	Arg	Asp	Val	Phe	Gly	Leu	Val	Ala	Gly	Arg	Phe	Lys	Arg
		195					200					205			
Val	Leu	Lys	Thr	Arg	Ala	Ala	Met	Gly	Tyr	Leu	Phe	Phe	Gln	Ala	Phe
	210					215					220				
Ser	Phe	Gly	Ser	Met	Phe	Ala	Phe	Leu	Thr	Glu	Ser	Ser	Phe	Val	Tyr
225					230					235					240
Arg	Gln	Leu	Tyr	His	Val	Thr	Pro	His	Arg	Tyr	Ala	Trp	Val	Phe	Ala
				245					250					255	
Leu	Asn	Ile	Ile	Thr	Met	Met	Phe	Phe	Ser	Arg	Val	Thr	Ala	Trp	Arg
		260						265					270		
Leu	Lys	Thr	Gly	Ala	His	Pro	Gln	Ser	Ile	Leu	Leu	Arg	Gly	Ile	Val
		275					280					285			
Val	Gln	Phe	Ala	Ala	Asn	Pro	Ser	Gln	Leu	Ala	Ala	Val	Leu	Phe	Phe

290	295	300
Gly Leu Pro Pro Phe Trp Leu Pro Val Ala Cys Val Met Phe Ser Val		
305	310	315 320
Gly Thr Gln Gly Leu Val Gly Ala Asp Thr Gln Ala Cys Phe Met Ser		
	325	330 335
Tyr Phe Lys Glu Glu Gly Gly Ser Ala Asn Ala Val Ser Gly Val Phe		
	340	345 350
Arg Ser Leu Ile Gly Ala Gly Val Val Met Ala Ala Thr Val Met Ala		
	355	360 365
Ala Thr Met Thr Ala Ser Ala Ser Cys Gly Ile Ala Leu Leu Trp Leu		
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Cys Ser His Lys Ala Trp Lys Glu Asn Glu Lys Lys Arg Ile Leu		
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<210> 2293

<211> 1380

<212> DNA

<213> *Neisseria meningitidis*

<400> 2293

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tacctgcccg cgattcccga aatggcgcaa tcgctgaacg cggatgttca ccgcacgaa 300
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<210> 2294

<211> 459

<212> PRT

<213> *Neisseria meningitidis*

<400> 2294

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			20					25					30			
Tyr	Cys	Val	Phe	Arg	Arg	Arg	Ala	Val	Cys	Leu	Arg	Ile	Gly	Arg	Glu	
		35					40					45				
Phe	Met	Pro	Ser	Ala	His	Tyr	Pro	Glu	Met	Ser	Glu	Lys	Leu	Met	Ala	
	50					55					60					
Val	Leu	Met	Ala	Met	Leu	Val	Thr	Leu	Met	Pro	Phe	Ser	Ile	Asp	Ala	
65					70					75					80	
Tyr	Leu	Pro	Ala	Ile	Pro	Glu	Met	Ala	Gln	Ser	Leu	Asn	Ala	Asp	Val	
				85					90					95		
His	Arg	Ile	Glu	Gln	Ser	Leu	Ser	Leu	Phe	Met	Phe	Gly	Thr	Ala	Phe	
			100					105					110			
Gly	Gln	Val	Val	Gly	Gly	Ser	Val	Ser	Asp	Ile	Lys	Gly	Arg	Lys	Pro	
		115					120					125				
Val	Ala	Leu	Thr	Gly	Leu	Ile	Val	Tyr	Cys	Leu	Ala	Val	Ala	Ala	Ile	
	130					135					140					
Val	Phe	Val	Ser	Ser	Ala	Glu	Gln	Leu	Leu	Asn	Leu	Arg	Val	Val	Gln	
145					150					155					160	
Ala	Phe	Gly	Ala	Gly	Met	Thr	Val	Val	Ile	Val	Gly	Ala	Met	Val	Arg	
				165					170					175		
Asp	Tyr	Tyr	Ser	Gly	Arg	Lys	Ala	Ala	Gln	Met	Phe	Ala	Leu	Ile	Gly	
			180					185					190			
Ile	Ile	Leu	Met	Val	Val	Pro	Leu	Val	Ala	Pro	Met	Val	Gly	Ala	Leu	
		195					200						205			
Leu	Gln	Gly	Leu	Gly	Gly	Trp	Gln	Ala	Ile	Phe	Val	Phe	Leu	Ala	Ala	
	210					215						220				
Tyr	Ser	Leu	Val	Leu	Leu	Gly	Leu	Val	Gln	Tyr	Phe	Leu	Pro	Lys	Pro	
225					230					235					240	
Ala	Val	Gly	Gly	Lys	Ile	Gly	Arg	Asp	Val	Phe	Gly	Leu	Val	Ala	Gly	
				245					250					255		
Arg	Phe	Lys	Arg	Val	Leu	Lys	Thr	Arg	Ala	Ala	Met	Gly	Tyr	Leu	Phe	
			260					265					270			
Phe	Gln	Ala	Phe	Ser	Phe	Gly	Ser	Met	Phe	Ala	Phe	Leu	Thr	Glu	Ser	
		275					280					285				
Ser	Phe	Val	Tyr	Gln	Gln	Leu	Tyr	Arg	Val	Thr	Pro	His	Gln	Tyr	Ala	
		290				295					300					

Trp Ala Phe Ala Leu Asn Ile Ile Thr Met Met Phe Phe Asn Arg Val  
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 Thr Ala Trp Arg Leu Lys Thr Gly Val His Pro Gln Ser Ile Leu Leu  
 325 330 335  
 Trp Gly Ile Val Val Gln Phe Ala Ala Asn Leu Ser Gln Leu Ala Ala  
 340 345 350  
 Val Leu Phe Phe Gly Leu Pro Pro Phe Trp Leu Leu Val Ala Cys Val  
 355 360 365  
 Met Phe Ser Val Gly Thr Gln Gly Leu Val Gly Ala Asn Thr Gln Ala  
 370 375 380  
 Cys Phe Met Ser Tyr Phe Lys Glu Glu Gly Gly Ser Ala Asn Ala Val  
 385 390 395 400  
 Leu Gly Val Phe Gln Ser Leu Ile Gly Ala Gly Val Gly Met Ala Ala  
 405 410 415  
 Thr Phe Leu His Asp Gly Ser Ala Thr Val Met Ala Ala Thr Met Thr  
 420 425 430  
 Ala Ser Thr Ser Cys Gly Ile Ala Leu Leu Trp Leu Cys Ser His Arg  
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 Ala Trp Lys Glu Asn Gly Gln Ser Glu Tyr Leu  
 450 455

<210> 2295  
 <211> 1380  
 <212> DNA  
 <213> *Neisseria meningitidis*

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 tacctgcccg cgattcccga aatggcgagc tcgctgaacg cgcatgtcca ccgcacgaa 300  
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<210> 2296

<211> 459

<212> PRT

<213> *Neisseria meningitidis*

<400> 2296

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Leu	Leu	Pro	Pro	Val	Cys	Ala	Gly	Val	Leu	Lys	Phe	Ser	Val	Ser	Ala	20	25	30	
Tyr	Cys	Val	Phe	Arg	Arg	Arg	Ala	Val	Cys	Leu	Arg	Ile	Gly	Arg	Glu	35	40	45	
Phe	Met	Pro	Ser	Ala	His	Tyr	Pro	Glu	Met	Ser	Glu	Lys	Leu	Met	Ala	50	55	60	
Val	Leu	Met	Ala	Met	Leu	Val	Thr	Leu	Met	Pro	Phe	Ser	Ile	Asp	Ala	65	70	75	80
Tyr	Leu	Pro	Ala	Ile	Pro	Glu	Met	Ala	Gln	Ser	Leu	Asn	Ala	Asp	Val	85	90	95	
His	Arg	Ile	Glu	Gln	Ser	Leu	Ser	Leu	Phe	Met	Phe	Gly	Thr	Ala	Phe	100	105	110	
Gly	Gln	Val	Val	Gly	Gly	Ser	Val	Ser	Asp	Ile	Lys	Gly	Arg	Lys	Pro	115	120	125	
Val	Ala	Leu	Thr	Gly	Leu	Ala	Val	Tyr	Cys	Leu	Ala	Val	Ala	Ala	Ile	130	135	140	
Val	Phe	Ala	Ser	Ser	Ala	Glu	Gln	Leu	Leu	Asn	Leu	Arg	Val	Val	Gln	145	150	155	160
Ala	Phe	Gly	Ala	Gly	Met	Thr	Val	Val	Ile	Val	Gly	Ala	Met	Val	Arg	165	170	175	
Asp	Tyr	Tyr	Ser	Gly	Arg	Lys	Ala	Ala	Gln	Met	Phe	Ala	Leu	Ile	Gly	180	185	190	
Ile	Ile	Leu	Met	Val	Val	Pro	Leu	Val	Ala	Pro	Met	Val	Gly	Ala	Leu	195	200	205	
Leu	Gln	Gly	Leu	Gly	Gly	Trp	Gln	Ala	Ile	Phe	Val	Phe	Leu	Ala	Ala	210	215	220	
Tyr	Ser	Leu	Val	Leu	Leu	Gly	Leu	Val	Gln	Tyr	Phe	Leu	Pro	Lys	Pro	225	230	235	240

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 Arg Phe Lys Arg Val Leu Lys Thr Arg Ala Ala Met Gly Tyr Leu Phe  
 260 265 270  
 Phe Gln Ala Phe Ser Phe Gly Ser Met Phe Ala Phe Leu Thr Glu Ser  
 275 280 285  
 Ser Phe Val Tyr Gln Gln Leu Tyr His Val Thr Pro His Gln Tyr Ala  
 290 295 300  
 Trp Ala Phe Ala Leu Asn Ile Ile Thr Met Met Phe Phe Asn Arg Ile  
 305 310 315 320  
 Thr Ala Trp Arg Leu Lys Thr Gly Val His Pro Gln Ser Ile Leu Leu  
 325 330 335  
 Trp Gly Ile Val Val Gln Phe Ala Ala Asn Leu Ser Gln Leu Ala Ala  
 340 345 350  
 Val Leu Phe Phe Gly Leu Pro Pro Phe Trp Leu Leu Val Ala Cys Val  
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 Met Phe Ser Val Gly Thr Gln Gly Leu Val Gly Ala Asn Thr Gln Ala  
 370 375 380  
 Cys Phe Met Ser Tyr Phe Lys Glu Glu Gly Gly Ser Ala Asn Ala Val  
 385 390 395 400  
 Leu Gly Val Phe Gln Ser Leu Ile Gly Ala Gly Val Gly Met Ala Ala  
 405 410 415  
 Thr Phe Leu His Asp Gly Ser Ala Thr Val Met Ala Ala Thr Met Thr  
 420 425 430  
 Ala Ser Thr Ser Cys Gly Ile Ala Leu Leu Trp Leu Cys Ser His Arg  
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 Ala Trp Lys Glu Asn Gly Gln Ser Glu Tyr Leu  
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<210> 2297  
 <211> 810  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

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 aacgaactgg aaaccggtt cggttaccc ggccggcgct atgacaacat acagcggctg 360  
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<210> 2298

<211> 269

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 2298

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Met Lys Asn Lys Thr Ser Ser Leu Pro Leu Trp Leu Ala Ala Ile Met
  1              5              10              15

Leu Ala Ala Arg Ser Pro Ser Lys Glu Asp Lys Thr Lys Glu Asn Gly
          20              25              30

Ala Ser Ala Ala Ser Ser Ser Ala Ser Ser Ala Ser Ser Gln Thr Asp
          35              40              45

Leu Gln Pro Ala Ala Ser Ala Pro Asp Asn Val Lys Gln Ala Glu Ser
          50              55              60

Ala Pro Leu Asn Cys Thr Gly Leu His Pro Ala Ala Gly Ile Gly Asp
          65              70              75              80

Leu Ile Gln Gln Ile Ala Glu His Ile Asp Ser Asp Cys Leu Phe Ala
          85              90              95

Leu Ser His Asn Glu Leu Glu Thr Arg Phe Gly Leu Pro Gly Gly Gly
          100             105             110

Tyr Asp Asn Ile Gln Arg Leu Leu Phe Pro Asp Ile Arg Pro Glu Asp
          115             120             125

Pro Asp Tyr His Gln Lys Ile Met Leu Ala Ile Glu Asp Leu Arg Tyr
          130             135             140

Gly Thr Arg Thr Ile Ser Arg Gln Ala Gln Asp Ala Ile Met Glu Gln
          145             150             155             160

Glu Arg Arg Leu Arg Glu Ala Thr Leu Met Leu Thr Gln Gly Ser Gln
          165             170             175

Lys Thr Arg Gly Gln Gly Glu Glu Pro Lys Arg Ala Arg Tyr Phe Glu
          180             185             190

Val Ser Ala Thr Ser Ala Tyr Leu Asn Arg His Asn Asn Gly Leu Gly
          195             200             205

Gly Asn Phe Gln Tyr Ile Gly Gln Leu Pro Gly Tyr Leu Lys Met His
          210             215             220

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Gly Glu Met Leu Glu Asn Gln Ser Leu Phe Arg Leu Ser Asn Arg Glu  
 225 230 235 240

Arg Asn Pro Asp Lys Pro Phe Leu Asp Ile His Phe Asp Glu Asn Gly  
 245 250 255

Lys Ile Thr Arg Ile Val Val Tyr Glu Lys Asn Ile Tyr  
 260 265

<210> 2299

<211> 837

<212> DNA

<213> Neisseria meningitidis

<400> 2299

atgaaaaaca aaacctcatc acttctctta tggcttaccg caatcatgct gaccgcgtgt 60  
 tctccgagca aagacgataa aaccaaagaa gtcggtgcat ccgctgcttc gtcctccgcg 120  
 tcatcagctc cttcccaaac cgatttgcaa ccgaccgcat ccgcccctga taacgtcaag 180  
 caggcagaaa gcgcgccgcc gtcaaatgac accagcctgc accccgccac cggcattgac 240  
 gatctcatgc agcaaatcgc cgaacacatt gactcggact gtctgtttgc cttttcccat 300  
 cacgaactgg aaacccggtt cggttaccg gacggtggct atgacaacat acagcggctg 360  
 ctgtttcccg acatccgccc tgaagatccc gactaccatc agaaaatcat actggcaatt 420  
 gaagacttgc gttacggaaa gcgcacgac agccggcagg cacaaaatgc cttgatggaa 480  
 caggaacgcc gcctccgaga agcgacgctg ttgtcgatag agggcagtca agaaacccgc 540  
 ggacaaggcg aggagccgaa acgcacgcgt tattttgaag ttctcggaac ccctgcctat 600  
 tgcagccggc acaacaacgg acttggcggc aatttccaat acatcagcca attgcccggc 660  
 tatctgaaaa tacacggaga aatgcttgaa aaccaatcac tcttccggct gtccaaccgt 720  
 gaacgcaatc ccgacaaaacc gtttttagac atccattttg acgaaaatgg caaaatcacg 780  
 cgtattgtcg tttagcaaaa aaacatctac ttcaatccaa acacggggcg aatataa 837

<210> 2300

<211> 278

<212> PRT

<213> Neisseria meningitidis

<400> 2300

Met Lys Asn Lys Thr Ser Ser Leu Leu Leu Trp Leu Thr Ala Ile Met  
 1 5 10 15

Leu Thr Ala Cys Ser Pro Ser Lys Asp Asp Lys Thr Lys Glu Val Gly  
 20 25 30

Ala Ser Ala Ala Ser Ser Ser Ala Ser Ser Ala Pro Ser Gln Thr Asp  
 35 40 45

Leu Gln Pro Thr Ala Ser Ala Pro Asp Asn Val Lys Gln Ala Glu Ser  
 50 55 60

Ala Pro Pro Ser Asn Cys Thr Ser Leu His Pro Ala Thr Gly Ile Asp  
 65 70 75 80

Asp Leu Met Gln Gln Ile Ala Glu His Ile Asp Ser Asp Cys Leu Phe  
 85 90 95

Ala Leu Ser His His Glu Leu Glu Thr Arg Phe Gly Leu Pro Asp Gly

100					105					110									
Gly	Tyr	Asp	Asn	Ile	Gln	Arg	Leu	Leu	Phe	Pro	Asp	Ile	Arg	Pro	Glu				
115					120					125									
Asp	Pro	Asp	Tyr	His	Gln	Lys	Ile	Ile	Leu	Ala	Ile	Glu	Asp	Leu	Arg				
130					135					140									
Tyr	Gly	Lys	Arg	Thr	Ile	Ser	Arg	Gln	Ala	Gln	Asn	Ala	Leu	Met	Glu				
145					150					155					160				
Gln	Glu	Arg	Arg	Leu	Arg	Glu	Ala	Thr	Leu	Leu	Leu	Ile	Gln	Gly	Ser				
165					170					175									
Gln	Glu	Thr	Arg	Gly	Gln	Gly	Glu	Glu	Pro	Lys	Arg	Thr	Arg	Tyr	Phe				
180					185					190									
Glu	Val	Ser	Ala	Thr	Pro	Ala	Tyr	Ser	Ser	Arg	His	Asn	Asn	Gly	Leu				
195					200					205									
Gly	Gly	Asn	Phe	Gln	Tyr	Ile	Ser	Gln	Leu	Pro	Gly	Tyr	Leu	Lys	Ile				
210					215					220									
His	Gly	Glu	Met	Leu	Glu	Asn	Gln	Ser	Leu	Phe	Arg	Leu	Ser	Asn	Arg				
225					230					235					240				
Glu	Arg	Asn	Pro	Asp	Lys	Pro	Phe	Leu	Asp	Ile	His	Phe	Asp	Glu	Asn				
245					250					255									
Gly	Lys	Ile	Thr	Arg	Ile	Val	Val	Tyr	Glu	Lys	Asn	Ile	Tyr	Phe	Asn				
260					265					270									
Pro	Asn	Thr	Gly	Arg	Ile														
275																			

<210> 2301

<211> 846

<212> DNA

<213> Neisseria meningitidis

<400> 2301

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tccccgagca aagaagataa aacgaaagaa aacggcgcat ccgccgcctc gtccacggca 120
tccgccgctt cgtcttccgc gccccaaacc gatttgcaac cggccgcctc cgcccctgat 180
aacgtcaagc aggcagaaaag cgtgccgccg tcaaattgca ccgacctgca ccccgccacc 240
ggcattgacg atctcatgca gcaaatcgcc gaacacattg actcggactg tctgtttgcc 300
ctttcccatc acgaactgga aaccggtttc ggcttaccgc gggcgggcta tgacaacata 360
cagcggtgctc tgtttccgga catccgccct gaagatccgc actaccatca gaaaatcata 420
ctggcaattg aagacttgcg ttacggaaaag cgcacgatca gccggcaggc acaagatgcc 480
ttgatggaac aggaacgccg cctccgagaa gcgacgctgt tgctgatata gggcagtcaa 540
gaaaccgcgc gacaaggcga ggagccgaaa cgcacgcgtt attttgaagt ttcggcaacc 600
cctgcctatt cgagccggca caacaacgga cttggcggca atttccaata catcggccaa 660
ttgcccggct atctgaaaat acacggagaa atgcttgaaa accaatcact cttccggctg 720
tccaaccgtg aacgcaatcc cgacaaaccg tttttagaca tccattttga cgaaaatggc 780
aaaatcacgc gtattgtcgt ttacgaaaaa aacatctact tcaatccaaa cttggggcga 840
agataa

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<210> 2302

<211> 281

<212> PRT

<213> Neisseria meningitidis

<400> 2302

Met	Lys	Asn	Lys	Thr	Ser	Ser	Leu	Leu	Leu	Trp	Leu	Ala	Ala	Met	Met
1				5					10					15	
Leu	Thr	Ala	Cys	Ser	Pro	Ser	Lys	Glu	Asp	Lys	Thr	Lys	Glu	Asn	Gly
			20					25					30		
Ala	Ser	Ala	Ala	Ser	Ser	Thr	Ala	Ser	Ala	Ala	Ser	Ser	Ser	Ala	Pro
		35					40					45			
Gln	Thr	Asp	Leu	Gln	Pro	Ala	Ala	Ser	Ala	Pro	Asp	Asn	Val	Lys	Gln
	50					55					60				
Ala	Glu	Ser	Val	Pro	Pro	Ser	Asn	Cys	Thr	Asp	Leu	His	Pro	Ala	Thr
65					70					75					80
Gly	Ile	Asp	Asp	Leu	Met	Gln	Gln	Ile	Ala	Glu	His	Ile	Asp	Ser	Asp
				85					90					95	
Cys	Leu	Phe	Ala	Leu	Ser	His	His	Glu	Leu	Glu	Thr	Arg	Phe	Gly	Leu
			100					105					110		
Pro	Gly	Gly	Gly	Tyr	Asp	Asn	Ile	Gln	Arg	Leu	Leu	Phe	Pro	Asp	Ile
		115					120					125			
Arg	Pro	Glu	Asp	Pro	Asp	Tyr	His	Gln	Lys	Ile	Ile	Leu	Ala	Ile	Glu
	130					135					140				
Asp	Leu	Arg	Tyr	Gly	Lys	Arg	Thr	Ile	Ser	Arg	Gln	Ala	Gln	Asp	Ala
145					150					155					160
Leu	Met	Glu	Gln	Glu	Arg	Arg	Leu	Arg	Glu	Ala	Thr	Leu	Leu	Leu	Ile
				165					170					175	
Gln	Gly	Ser	Gln	Glu	Thr	Arg	Gly	Gln	Gly	Glu	Glu	Pro	Lys	Arg	Thr
			180					185					190		
Arg	Tyr	Phe	Glu	Val	Ser	Ala	Thr	Pro	Ala	Tyr	Ser	Ser	Arg	His	Asn
		195					200					205			
Asn	Gly	Leu	Gly	Gly	Asn	Phe	Gln	Tyr	Ile	Gly	Gln	Leu	Pro	Gly	Tyr
	210					215					220				
Leu	Lys	Ile	His	Gly	Glu	Met	Leu	Glu	Asn	Gln	Ser	Leu	Phe	Arg	Leu
225					230					235					240
Ser	Asn	Arg	Glu	Arg	Asn	Pro	Asp	Lys	Pro	Phe	Leu	Asp	Ile	His	Phe
				245					250					255	
Asp	Glu	Asn	Gly	Lys	Ile	Thr	Arg	Ile	Val	Val	Tyr	Glu	Lys	Asn	Ile

260

265

270

Tyr Phe Asn Pro Asn Leu Gly Arg Arg  
275 280

&lt;210&gt; 2303

&lt;211&gt; 435

&lt;212&gt; DNA

<213> *Neisseria gonorrhoeae*

&lt;400&gt; 2303

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ttgcttttct gccagctttc ccacgcgcgc acggcttata tccccccgaa cgattttcaa 120
ccgaactgcg acatacgccg gctcgggctg acacagggtc agcacaatga gctgcgtaaa 180
atccgcgcgc ccttcaaaaat ggcgggcgac agggcgcggt tgaagggtat gcattccgaa 240
cacagccgcc gccgctctgt cgtcgaaaatc atttcttcgg atgttttttaa tcggaacgag 300
gcgcgcgatt atgtcgaaaag ccgctaccac tccagcatgg attttgcggt ggacgaattg 360
gaaatccaac accgcttctt ccatattctc acaccgcaac agcagcaaat gtggctttct 420
tctgcctca aataa 435
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&lt;210&gt; 2304

&lt;211&gt; 144

&lt;212&gt; PRT

<213> *Neisseria gonorrhoeae*

&lt;400&gt; 2304

Val Pro Leu Pro Ala Pro Cys Arg Phe Ala Lys Pro Ala Ala Ser Phe  
1 5 10 15

Leu Ser Met Ala Leu Leu Ser Cys Gln Leu Ser His Ala Ala Thr Ala  
20 25 30

Tyr Ile Pro Pro Asn Asp Phe Gln Pro Asn Cys Asp Ile Arg Arg Leu  
35 40 45

Gly Leu Thr Gln Gly Gln His Asn Glu Leu Arg Lys Ile Arg Ala Ala  
50 55 60

Phe Lys Met Ala Gly Asp Arg Ala Arg Leu Lys Val Met His Ser Glu  
65 70 75 80

His Ser Arg Arg Arg Ser Val Val Glu Ile Ile Ser Ser Asp Val Phe  
85 90 95

Asn Arg Asn Glu Ala Arg Asp Tyr Val Glu Ser Arg Tyr His Ser Ser  
100 105 110

Met Asp Phe Ala Val Asp Glu Leu Glu Ile Gln His Arg Phe Phe His  
115 120 125

Ile Leu Thr Pro Gln Gln Gln Gln Met Trp Leu Ser Ser Cys Leu Lys  
130 135 140

<210> 2305  
 <211> 435  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2305  
 gtgccactgc ctgctccctg ccgttttgcc aaacctgccg cctctttttt aagtatggct 60  
 ttgcttttct gtcagctttc ccacgcgcgc acggcttata tcccccgaa cgattttcaa 120  
 ccgaactgcg acatacgccg actcgggctg acccaaagtc agcacaatga gctgcgtaaa 180  
 atccgcaccg ccttcaaaat ggcgggcgac agggcgcggt tgaaggttat gcattccgaa 240  
 cacagccgcc gccggtctgt cgtcgaaatc atttcctcgg atgtttttaa tcggaacgag 300  
 gcgcgcgatt atgtcgaaag ccgctatttg tccggtatgg attttgcggt ggacgaattg 360  
 gaaatccaac accggttctt ccatactctc acaccgcaac agcagcaaat gtggctttct 420  
 tcctgcctca aataa 435

<210> 2306  
 <211> 144  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2306  
 Val Pro Leu Pro Ala Pro Cys Arg Phe Ala Lys Pro Ala Ala Ser Phe  
 1 5 10 15  
 Leu Ser Met Ala Leu Leu Ser Cys Gln Leu Ser His Ala Ala Thr Ala  
 20 25 30  
 Tyr Ile Pro Pro Asn Asp Phe Gln Pro Asn Cys Asp Ile Arg Arg Leu  
 35 40 45  
 Gly Leu Thr Gln Ser Gln His Asn Glu Leu Arg Lys Ile Arg Thr Ala  
 50 55 60  
 Phe Lys Met Ala Gly Asp Arg Ala Arg Leu Lys Val Met His Ser Glu  
 65 70 75 80  
 His Ser Arg Arg Arg Ser Val Val Glu Ile Ile Ser Ser Asp Val Phe  
 85 90 95  
 Asn Arg Asn Glu Ala Arg Asp Tyr Val Glu Ser Arg Tyr Leu Ser Gly  
 100 105 110  
 Met Asp Phe Ala Val Asp Glu Leu Glu Ile Gln His Arg Phe Phe His  
 115 120 125  
 Ile Leu Thr Pro Gln Gln Gln Gln Met Trp Leu Ser Ser Cys Leu Lys  
 130 135 140

<210> 2307  
 <211> 435



<212> DNA  
<213> *Neisseria meningitidis*

<400> 2307  
gtgccactgc ntgctccctg ccgttttggc aaacctgccc cctctttttt aagtatggct 60  
ttgcttttcc gccagctttc ccacgcccgc acggcttata tccccctgaa cgattttcaa 120  
ccgaactgcg acatacgccg gctcggactg acacagggtc agcacaatga actgcgtaaa 180  
atccgcgcgc ccttcaaaaat ggcgggcgac agggcgcggt tgaaggttat gcattccgaa 240  
cacagccgcc gtccgtctgt cgtcgaaatc atttctctcg atgtttttta tcggaacgag 300  
gcgcgcgatt atgtcgaaaag ccgctatttg tccggatatg attttgcggt ggacgaattg 360  
gaaatccaac accggttctt ccatatcttc acaccgcaac agcagcaaat gtggctttct 420  
tctgcctca aataa 435

<210> 2308  
<211> 144  
<212> PRT  
<213> *Neisseria meningitidis*

<400> 2308  
Val Pro Leu Xaa Ala Pro Cys Arg Phe Ala Lys Pro Ala Ala Ser Phe  
1 5 10 15  
Leu Ser Met Ala Leu Leu Ser Cys Gln Leu Ser His Ala Ala Thr Ala  
20 25 30  
Tyr Ile Pro Leu Asn Asp Phe Gln Pro Asn Cys Asp Ile Arg Arg Leu  
35 40 45  
Gly Leu Thr Gln Gly Gln His Asn Glu Leu Arg Lys Ile Arg Ala Ala  
50 55 60  
Phe Lys Met Ala Gly Asp Arg Ala Arg Leu Lys Val Met His Ser Glu  
65 70 75 80  
His Ser Arg Arg Arg Ser Val Val Glu Ile Ile Ser Ser Asp Val Phe  
85 90 95  
Asn Arg Asn Glu Ala Arg Asp Tyr Val Glu Ser Arg Tyr Leu Ser Gly  
100 105 110  
Met Asp Phe Ala Val Asp Glu Leu Glu Ile Gln His Arg Phe Phe His  
115 120 125  
Ile Leu Thr Pro Gln Gln Gln Gln Met Trp Leu Ser Ser Cys Leu Lys  
130 135 140

<210> 2309  
<211> 1014  
<212> DNA  
<213> *Neisseria gonorrhoeae*

<400> 2309

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ttttatacga ctgccttatt tggctgcgcc ttcatccat gcggcagggt atttgtagcc 180
ctcgaagcgt ttgtgcgcgt aggccttgaa cgcgtcggag ttataggcct cggttacgtc 240
ttaagccat tggctgtctt tgtcggcggg tttgacggca gaccagttga cataggcaaa 300
gctcggctct tggaaacagg cttcggtcag cttcatgccg ctgcttatgg cgtagttgcc 360
gttgacgacg gcaaaatcca cgtcggcgcg gctgcgcggc agttgtgcgg cttcaagctc 420
gacgattttg atgtttttca ggttttccgc gatgtcggct ttggatgcgg tcagcggatt 480
gatgccgtct ttgagtttga tccaaccag ttcgttcagc atcaccaagg cgcgtgcgaa 540
gttggacggg tcgttgggcg cggatacggg gctgcgcgtct ttgacttctt ccagcgattt 600
cagtttgccc ggatacagtc ccaaaggcgc gctcggcact tggaaaggctt cggtgatgtc 660
caggttggtg ttttttttga aatcgtcaag atagggtttg tgttggaaga cgttgatgtc 720
caactcgcgc tccgccaatg ccagattcgg gcgcacatag tcggtaaatt cgaccaattt 780
gacggtgtag ctttttttct ccagctcggc ttggatttgt tctttgacca tatcgccgaa 840
gtcgcgccac gtcgtgccga agacgatttc ttttttcgcc gcgccgttat cggcagaagg 900
ggcggcggca gaggctgcgg gcgcgctgtc tttttgaccg ccgcaggctg cgaggatgag 960
cgcgagtgcg gcggcggaaa gggttttgaa gaaggttttc atattttctc ctga 1014
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<210> 2310

<211> 337

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2310

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Val Ser His Thr Arg Cys Arg Cys Ser Glu Ser Ile Arg Arg Ile Trp
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Arg Asn Gly Arg Glu Trp Arg Ile Lys Gly Gln Lys Cys Arg Leu Asn
          20                      25                      30

Thr Asp Ala Val Gln Thr Ala Ser Phe Tyr Thr Thr Ala Leu Phe Gly
    35                      40                      45

Cys Ala Phe Ile Pro Cys Gly Arg Val Phe Val Ala Leu Glu Ala Phe
    50                      55                      60

Val Arg Val Gly Phe Glu Arg Val Gly Val Ile Gly Leu Gly Tyr Val
    65                      70                      75                      80

Phe Lys Pro Leu Ala Val Phe Val Gly Gly Phe Asp Gly Arg Pro Val
          85                      90                      95

Asp Ile Gly Lys Ala Arg Leu Leu Glu Gln Gly Phe Gly Gln Leu His
    100                      105                      110

Ala Ala Ala Tyr Gly Val Val Ala Val Asp Asp Gly Lys Ile His Val
    115                      120                      125

Gly Ala Ala Ala Arg Gln Leu Cys Gly Phe Lys Leu Asp Asp Phe Asp
    130                      135                      140

Val Phe Gln Val Phe Arg Asp Val Gly Phe Gly Cys Gly Gln Arg Ile
    145                      150                      155                      160

Asp Ala Val Phe Glu Phe Asp Pro Thr Gln Phe Val Gln His His Gln
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165	170	175
Gly Ala Cys Glu Val Gly Arg Val Val Gly Arg Gly Tyr Gly Ala Ala		
180	185	190
Val Phe Asp Phe Phe Gln Arg Phe Gln Phe Ala Arg Ile Gln Ser Gln		
195	200	205
Arg Arg Gly Arg His Leu Glu Gly Phe Gly Asp Val Gln Val Val Phe		
210	215	220
Phe Phe Glu Ile Val Lys Ile Gly Phe Val Leu Glu Asp Val Asp Val		
225	230	235
Gln Leu Ala Leu Arg Gln Cys Gln Ile Arg Ala His Ile Val Gly Lys		
245	250	255
Phe Asp Gln Phe Asp Gly Val Ala Phe Phe Leu Gln Leu Gly Leu Asp		
260	265	270
Leu Phe Phe Asp His Ile Ala Glu Val Ala His Gly Arg Ala Glu Asp		
275	280	285
Asp Phe Phe Phe Arg Arg Ala Val Ile Gly Arg Arg Gly Gly Gly Arg		
290	295	300
Gly Cys Gly Arg Ala Val Phe Leu Thr Ala Ala Gly Cys Glu Asp Glu		
305	310	315
Arg Glu Cys Gly Gly Gly Lys Gly Phe Glu Glu Gly Phe His Ile Phe		
325	330	335

Ser

<210> 2311  
 <211> 1011  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2311

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gaatggcggga	ttaaaggaca	aaaatgccgt	ctgaacacgg	atacagttca	gacggcatca	120
ttttatacga	ctgccttatt	tggctgcgcc	ttcattccat	gcggcagggg	atttgtagcc	180
ctcgaagcgt	ttgtgcgcgt	aggctttgaa	cgcgtcggag	ttataggcct	cggttacgtc	240
tttaagccat	tggctgtcct	tgtcggcggg	tttgacggca	gaccagttga	cataggcaaa	300
gctcggttct	tggaacaggg	cttcggtcag	cttcatgccg	ctgcttatgg	cgtagttgcc	360
gttgacgacg	gcaaaatcca	cgtcggcgcg	gctacgcggc	agttgcgcgg	cttcaagctc	420
gacgattttg	atgtttttca	ggttctcggc	gatgtccgct	ttggatgcgg	tcaacggatt	480
gatgccgtct	ttgagtttga	tccaaccag	ttcgtcgagc	atcaccaaga	cgcgggcgaa	540
gttggacggg	tcgttgggcg	cggatacggg	gctgccgtct	ttgacttctt	ccagcgattt	600
cagcttgccc	gggtacagtc	ccaaaggcgc	ggtcggcact	tggaagactt	cggtgatgtc	660
cagattgtgt	tcttttttga	agtcgtcaag	atagggtttg	tggttgaaga	cgttgatgtc	720
caactcgccc	tcagccaatg	ccagattcgg	gcgtacatag	tcggtaaact	cgaccagttt	780
gacggtgtag	ccttttttct	ccagctcggc	ttggatttgt	tctttgacca	tatcgccgaa	840
gtcgcgcgacg	gtcgtgccga	agacgatttc	ttttttcgcc	gcgccgttgt	cggcggcgcc	900

agaagcggat gcggcgggcg cgctgtcttt ttgaccgccg caggcggcga ggatgagcgc 960  
gagtgcggcg gcggaaaggg ttttgaagaa ggttttcata ttttctcctg a 1011

<210> 2312  
<211> 336  
<212> PRT  
<213> Neisseria meningitidis

<400> 2312  
Val Leu His Thr Leu Cys Arg Cys Ser Glu Ser Ile Arg Arg Ile Arg  
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Arg Asn Gly Arg Glu Trp Arg Ile Lys Gly Gln Lys Cys Arg Leu Asn  
20 25 30  
Thr Asp Thr Val Gln Thr Ala Ser Phe Tyr Thr Thr Ala Leu Phe Gly  
35 40 45  
Cys Ala Phe Ile Pro Cys Gly Arg Gly Phe Val Ala Leu Glu Ala Phe  
50 55 60  
Val Arg Val Gly Phe Glu Arg Val Gly Val Ile Gly Leu Gly Tyr Val  
65 70 75 80  
Phe Lys Pro Leu Ala Val Phe Val Gly Gly Phe Asp Gly Arg Pro Val  
85 90 95  
Asp Ile Gly Lys Ala Arg Phe Leu Glu Gln Gly Phe Gly Gln Leu His  
100 105 110  
Ala Ala Ala Tyr Gly Val Val Ala Val Asp Asp Gly Lys Ile His Val  
115 120 125  
Gly Ala Ala Thr Arg Gln Leu Arg Gly Phe Lys Leu Asp Asp Phe Asp  
130 135 140  
Val Phe Gln Val Leu Gly Asp Val Arg Phe Gly Cys Gly Gln Arg Ile  
145 150 155 160  
Asp Ala Val Phe Glu Phe Asp Pro Thr Gln Phe Val Glu His His Gln  
165 170 175  
Asp Ala Gly Glu Val Gly Arg Val Val Gly Arg Gly Tyr Gly Ala Ala  
180 185 190  
Val Phe Asp Phe Phe Gln Arg Phe Gln Leu Ala Arg Val Gln Ser Gln  
195 200 205  
Arg Arg Gly Arg His Leu Glu Asp Phe Gly Asp Val Gln Ile Val Phe  
210 215 220  
Phe Phe Glu Val Val Lys Ile Gly Phe Val Leu Glu Asp Val Asp Val  
225 230 235 240  
Gln Leu Ala Leu Ser Gln Cys Gln Ile Arg Ala Tyr Ile Val Gly Lys

245                      250                      255  
 Leu Asp Gln Phe Asp Gly Val Ala Phe Phe Leu Gln Leu Gly Leu Asp  
                     260                      265                      270  
 Leu Phe Phe Asp His Ile Ala Glu Val Ala Asp Gly Arg Ala Glu Asp  
                     275                      280                      285  
 Asp Phe Phe Phe Arg Arg Ala Val Val Gly Gly Gly Arg Ser Gly Cys  
                     290                      295                      300  
 Gly Gly Arg Ala Val Phe Leu Thr Ala Ala Gly Gly Glu Asp Glu Arg  
 305                      310                      315                      320  
 Glu Cys Gly Gly Gly Lys Gly Phe Glu Glu Gly Phe His Ile Phe Ser  
                     325                      330                      335

<210> 2313  
 <211> 1011  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 2313  
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 gaatggcagg ttaaaggaca aaaatgccgt ctgaacacgg atacggttca gacggcatca 120  
 ttttatacga ctgccttatt tggctgcgcc ttcattccat gcggcagggg atttgtagcc 180  
 ctggaagcgt ttgtgcgcgt aggctttgaa cgcgtcggag ttataggcct cggttacgtc 240  
 tttaagccat tggctgtctt tgtcggcggg tttgacggca gaccagttga cataggcaaa 300  
 gctcggttct tggaaacaggg cttcggtcag cttcatgccg ctgcttatgg cgtagttgcc 360  
 gttgacgacg gcaaaatcca cgtcggcgcg gctacgcggc agttgcgcgg cttcaagctc 420  
 gacgattttg atgtttttca ggttttcggc aatgtccgct ttggatgcgg tcagcggatt 480  
 gatgccgtct ttgagtttga tccaaccag ttcgtcgagc atcaccaaga cgcgggcgaa 540  
 gttggacggg tcgttgggcg cggatacggg gctgcgctct ttgacttctt ccagcgattt 600  
 cagcttgccc gggtagacgc ccaaaggcgc ggtcggcact tggaagactt cggtagtgc 660  
 cagatttgtt tcttttttga agtcgtcaag atagggtttg tgttggaaga cgttgatgtc 720  
 caactcgccc tcagccaatg ccagattcgg gcgcacatag tcggtaaact cgaccagttt 780  
 gacggtgtag ccttttttct ccagctcggg ttggatttgt tctttgacca tatcgccgaa 840  
 gtcgccgacg gtcgtgccga agacgatttc ttttttcgcc gcgccgttgt cggcggcggc 900  
 agaagcggat gcggcgggcg cgctatcttt ttgaccgcgg caggcggcga ggatgagcgc 960  
 gagtgcggcg gcggaaaggg ttttgaagaa ggttttcata ttttctcctg a 1011

<210> 2314  
 <211> 336  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 2314  
 Val Leu His Thr Leu Cys Arg Cys Ser Glu Ser Ile Arg Arg Ile Arg  
   1                    5                    10                    15  
 Arg Asn Gly Arg Glu Trp Arg Ile Lys Gly Gln Lys Cys Arg Leu Asn  
                     20                    25                    30

Thr	Asp	Thr	Val	Gln	Thr	Ala	Ser	Phe	Tyr	Thr	Thr	Ala	Leu	Phe	Gly	35	40	45
Cys	Ala	Phe	Ile	Pro	Cys	Gly	Arg	Gly	Phe	Val	Ala	Leu	Glu	Ala	Phe	50	55	60
Val	Arg	Val	Gly	Phe	Glu	Arg	Val	Gly	Val	Ile	Gly	Leu	Gly	Tyr	Val	65	70	75
Phe	Lys	Pro	Leu	Ala	Val	Phe	Val	Gly	Gly	Phe	Asp	Gly	Arg	Pro	Val	85	90	95
Asp	Ile	Gly	Lys	Ala	Arg	Phe	Leu	Glu	Gln	Gly	Phe	Gly	Gln	Leu	His	100	105	110
Ala	Ala	Ala	Tyr	Gly	Val	Val	Ala	Val	Asp	Asp	Gly	Lys	Ile	His	Val	115	120	125
Gly	Ala	Ala	Thr	Arg	Gln	Leu	Arg	Gly	Phe	Lys	Leu	Asp	Asp	Phe	Asp	130	135	140
Val	Phe	Gln	Val	Phe	Gly	Asn	Val	Arg	Phe	Gly	Cys	Gly	Gln	Arg	Ile	145	150	155
Asp	Ala	Val	Phe	Glu	Phe	Asp	Pro	Thr	Gln	Phe	Val	Glu	His	His	Gln	165	170	175
Asp	Ala	Gly	Glu	Val	Gly	Arg	Val	Val	Gly	Arg	Gly	Tyr	Gly	Ala	Ala	180	185	190
Val	Phe	Asp	Phe	Phe	Gln	Arg	Phe	Gln	Leu	Ala	Arg	Val	Gln	Ser	Gln	195	200	205
Arg	Arg	Gly	Arg	His	Leu	Glu	Asp	Phe	Gly	Asp	Val	Gln	Ile	Val	Phe	210	215	220
Phe	Phe	Glu	Val	Val	Lys	Ile	Gly	Phe	Val	Leu	Glu	Asp	Val	Asp	Val	225	230	235
Gln	Leu	Ala	Leu	Ser	Gln	Cys	Gln	Ile	Arg	Ala	His	Ile	Val	Gly	Lys	245	250	255
Leu	Asp	Gln	Phe	Asp	Gly	Val	Ala	Phe	Phe	Leu	Gln	Leu	Gly	Leu	Asp	260	265	270
Leu	Phe	Phe	Asp	His	Ile	Ala	Glu	Val	Ala	Asp	Gly	Arg	Ala	Glu	Asp	275	280	285
Asp	Phe	Phe	Phe	Arg	Arg	Ala	Val	Val	Gly	Gly	Gly	Arg	Ser	Gly	Cys	290	295	300
Gly	Gly	Arg	Ala	Ile	Phe	Leu	Thr	Ala	Ala	Gly	Gly	Glu	Asp	Glu	Arg	305	310	315
Glu	Cys	Gly	Gly	Gly	Lys	Gly	Phe	Glu	Glu	Gly	Phe	His	Ile	Phe	Ser	325	330	335

<210> 2315  
 <211> 1119  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 2315  
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 caaatcgggt ttggtttcgc cctcgcggcg cagctccttg ggcaggacga acacgatgct 120  
 ttcttccgcg cccccccctt cgcgcacggg ttcattgcccc catccgcgta tggttgccaa 180  
 tacttcccgc accaacaactt cgggcgcgga cgcgcctgcc gttacgccga ctttgctttt 240  
 gccttcaaac cactgctgtt gcaggtagga cgcgttggtc accatatacg catcgattcc 300  
 gcgcgatgcc gccacttcgc gcaggcgggt gctgttggtc gaattgggag aaccgaccac 360  
 aatcacgatg tcgcactgtt ccgccagctc tttgacggcg gtttgccggt tggtcgtcgc 420  
 atagcagatg tcttccttgt gcggattgct gatattgggg aaacgcgcgt tcagcgcggc 480  
 gatgatgtct ttggtttcat cgaccgagag cgtggttttg ctgacatagg cgagtttctc 540  
 ggggtttctg acttcgagtt ttgccacatc tccgaccgtt tcgacaaaaa gcattttgcc 600  
 cgggtgaagc tgccccatcg tgcccttcgac ctccggcgtc cccttatgcc cgatcatgat 660  
 gatttcacag tcttgggcat ccagtcgggc gacttcctta tgcactttcg tcaccagcgg 720  
 gcaagtgcga tcaaataccc ggaaaccgcg ctccgcgcgt tctgtctgca ccgccttcga 780  
 tacgcctgtg gccgaataaa ccagtgtcgc gcccgccggc acttcgcgca agtcttcgat 840  
 aaacaccgcg cctttttcgc gcaggttgtc cacgacgaat ttgttggtga cgacttcgtg 900  
 gcgcacataa accggcgcgc cgaattcttc caaagcacgt tcgacaatac tgattgcccg 960  
 atccacaccg gcgcagaagc cgcgcggatt ggcaaggatg atggtttttc cgttcataag 1020  
 ttttgcattc cgtgttcaga cggcattcac gtttttttgc tnnatctttg cgatggacga 1080  
 tattgtcaag caccgccaac accgcaccga cgcagataa 1119

<210> 2316  
 <211> 372  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 2316  
 Ser Ala Phe Val Leu Pro Lys His Pro Met Pro Ala Leu Thr Pro Ala  
 1 5 10 15  
 Ser Thr Phe Ala Gln Ile Gly Phe Gly Phe Ala Leu Ala Ala Gln Leu  
 20 25 30  
 Leu Gly Gln Asp Glu His Asp Ala Phe Phe Arg Ala Pro Pro Phe Ala  
 35 40 45  
 His Gly Phe Met Pro Pro Ser Ala Tyr Gly Cys Gln Tyr Phe Pro His  
 50 55 60  
 Gln His Phe Gly Arg Gly Arg Ala Cys Arg Tyr Ala Asp Phe Ala Phe  
 65 70 75 80  
 Ala Phe Lys Pro Arg Ala Leu Gln Val Gly Arg Val Val His His Ile  
 85 90 95  
 Arg Ile Asp Ser Ala Arg Cys Arg His Phe Ala Gln Ala Val Ala Val

100	105	110
Gly Arg Ile Gly Arg Thr Asp His Asn His Asp Val Ala Leu Phe Arg 115 120 125		
Gln Leu Phe Asp Gly Gly Leu Pro Val Gly Arg Arg Ile Ala Asp Val 130 135 140		
Phe Leu Val Arg Ile Ala Asp Ile Gly Glu Thr Arg Val Gln Arg Gly 145 150 155 160		
Asp Asp Val Phe Gly Phe Ile Asp Arg Glu Arg Gly Leu Ala Asp Ile 165 170 175		
Gly Glu Phe Val Gly Val Ser Asp Phe Glu Phe Cys His Ile Ser Asp 180 185 190		
Arg Phe Asp Gln Lys His Phe Ala Arg Cys Lys Leu Pro His Arg Ala 195 200 205		
Phe Asp Leu Gly Val Pro Leu Met Pro Asp His Asp Asp Phe Thr Val 210 215 220		
Leu Gly Ile Gln Ser Gly Asp Phe Leu Met His Phe Arg His Gln Arg 225 230 235 240		
Ala Ser Arg Ile Lys Tyr Pro Glu Thr Ala Leu Arg Arg Phe Leu Leu 245 250 255		
His Arg Leu Arg Tyr Ala Val Cys Arg Ile Asn Gln Cys Arg Ala Arg 260 265 270		
Arg His Phe Arg Gln Val Phe Asp Lys His Arg Ala Phe Phe Ala Gln 275 280 285		
Val Val His Asp Glu Phe Val Val Asp Asp Phe Val Ala His Ile Asn 290 295 300		
Arg Arg Ala Glu Phe Phe Gln Ser Thr Phe Asp Asn Thr Asp Cys Pro 305 310 315 320		
Ile His Thr Gly Ala Glu Ala Ala Arg Ile Gly Lys Asp Asp Gly Phe 325 330 335		
Ser Val His Lys Phe Cys Ile Pro Cys Ser Asp Gly Ile His Val Phe 340 345 350		
Leu Leu Xaa Leu Cys Asp Gly Arg Tyr Cys Gln Ala Pro Pro Thr Pro 355 360 365		
His Arg Arg Arg 370		

<210> 2317  
 <211> 1158  
 <212> DNA



<213> Neisseria meningitidis

<400> 2317

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ttggtttccg catccggcac acggcaaaaa tgccgtctga agcctgttca gacggcattt 60
gtgttgccca aacattcaac gcctgctgca acgtttgcac aaatcgggtt tggtttcgcc 120
ctcgcggcgc aactcttttg gcaggacgaa cacaatgctt tcttccgcac cctcgccttc 180
gcgtacggtt tctgcccccc atccgcgtat ggttgccagt acttcccgca ccaacacttc 240
gggcgcgggac gcgcctgccg ttacgccgac tttgtttttg ccctcaaacc atgcgcgttg 300
caggtagcct gcattatcca ccatatacgc atcgattccg cgcgatgccg ccacttcgcg 360
caagcgggtg ctgttgagc aattgggcga accgaccaca atcacgatgt cgcactgttc 420
tgccaactct ttgacggcgg tttgccgggt ggtcgtcgca tagcagatat cttccttgtg 480
cggattgcgg atattgggga aacgcgcgtt cagcgcggcg atgatgtctt tggtttcac 540
gaccgagagc gtggtttggc tgacataggc gagtttgcg gggtttctga cttcgagttt 600
tgccacatct ccgaccgttt cgacccaaaag cattttgccc ggcgcaagct gcccacatcg 660
tccttcgacc tgcagtgccc ccttatgccc gatcatgatg atttcacagt cttggggcatc 720
cagtcggggcg acttccttat gcactttcgt caccagcggg caagtcgcat caaacacgcg 780
gaaaccgcgc tccgccgctt cttgccgcac cgccttcgat acgccgtgtg ccgaataaac 840
cagtgtcgcg cccggcggca cttccgccaa gtcctcaata aacaccgcac ctttttcacg 900
caggttgccc acgacgaatt tggtgtgaac gacttcgtgg cgcacataaa tcggcgcgcc 960
gaactcttcc aaagcacgtt cgacaatact gattgcccga tccacaccag cgcagaagcc 1020
gcgcggattg gcaaggatga tggttttctc gttcataaag ccggtatttc gttttcagac 1080
ggcatcaata tttttcttct tgggttttac ggtggacgat gttgtccaac accgccaaca 1140
ccgcaccgac gcagataa 1158
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<210> 2318

<211> 385

<212> PRT

<213> Neisseria meningitidis

<400> 2318

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Leu Val Ser Ala Ser Gly Thr Arg Gln Lys Cys Arg Leu Lys Pro Val
  1              5              10             15

Gln Thr Ala Phe Val Leu Pro Lys His Ser Thr Pro Ala Ser Thr Phe
      20              25              30

Ala Gln Ile Gly Phe Gly Phe Ala Leu Ala Ala Gln Leu Phe Gly Gln
      35              40              45

Asp Glu His Asn Ala Phe Phe Arg Thr Leu Ala Phe Ala Tyr Gly Phe
      50              55              60

Val Pro Pro Ser Ala Tyr Gly Cys Gln Tyr Phe Pro His Gln His Phe
      65              70              75              80

Gly Arg Gly Arg Ala Cys Arg Tyr Ala Asp Phe Val Phe Ala Leu Lys
      85              90              95

Pro Cys Ala Leu Gln Val Ala Cys Ile Ile His His Ile Arg Ile Asp
      100             105             110

Ser Ala Arg Cys Arg His Phe Ala Gln Ala Val Ala Val Gly Arg Ile
      115             120             125

Gly Arg Thr Asp His Asn His Asp Val Ala Leu Phe Cys Gln Leu Phe
      130             135             140
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Asp Gly Gly Leu Pro Val Gly Arg Arg Ile Ala Asp Ile Phe Leu Val  
 145 150 155 160  
 Arg Ile Ala Asp Ile Gly Glu Thr Arg Val Gln Arg Gly Asp Asp Val  
 165 170 175  
 Phe Gly Phe Ile Asp Arg Glu Arg Gly Leu Ala Asp Ile Gly Glu Phe  
 180 185 190  
 Val Gly Val Ser Asp Phe Glu Phe Cys His Ile Ser Asp Arg Phe Asp  
 195 200 205  
 Gln Lys His Phe Ala Arg Arg Lys Leu Pro His Arg Ser Phe Asp Leu  
 210 215 220  
 Asp Val Pro Leu Met Pro Asp His Asp Asp Phe Thr Val Leu Gly Ile  
 225 230 235 240  
 Gln Ser Gly Asp Phe Leu Met His Phe Arg His Gln Arg Ala Ser Arg  
 245 250 255  
 Ile Lys His Ala Glu Thr Ala Leu Arg Arg Phe Leu Pro His Arg Leu  
 260 265 270  
 Arg Tyr Ala Val Cys Arg Ile Asn Gln Cys Arg Ala Arg Arg His Phe  
 275 280 285  
 Arg Gln Val Phe Asn Lys His Arg Thr Phe Phe Thr Gln Val Val His  
 290 295 300  
 Asp Glu Phe Val Val Asn Asp Phe Val Ala His Ile Asn Arg Arg Ala  
 305 310 315 320  
 Glu Leu Phe Gln Ser Thr Phe Asp Asn Thr Asp Cys Pro Ile His Thr  
 325 330 335  
 Ser Ala Glu Ala Ala Arg Ile Gly Lys Asp Asp Gly Phe Leu Val His  
 340 345 350  
 Lys Pro Gly Ile Ser Phe Ser Asp Gly Ile Asn Ile Phe Leu Leu Gly  
 355 360 365  
 Phe Tyr Gly Gly Arg Cys Cys Pro Thr Pro Pro Thr Pro His Arg Arg  
 370 375 380  
 Arg  
 385

<210> 2319

<211> 1158

<212> DNA

<213> Neisseria meningitidis

<400> 2319

ttggttttccg catccggcac acggcaaaaa tgccgtctga agcctgttca gacggcattt 60

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gtgttgccca aacattcaac gcctgcgta acgtttgcac aaatcgggtt tggtttcgcc 120
ctcgcggcgc aactcttttg gcaggacgaa cacaatgctt tcttccgcac cctcgccttc 180
gcgtacgggtt tcgtgcccc atccgcgtat ggttgccagt acttcccgc ccaacacttc 240
gggcgcggac gcgcctgccc ttacgccgac tttgtttttg ccctcaaacc atgcgcgttg 300
caggtagcct gcattatcca ccataacgc atcgattccg cgcgatgccg ccacttcgcg 360
caagcgggtt ctgttggacg aattggggcg accgaccaca atcacgatgt cgcactgttc 420
tgccaactct ttgacggcgg tttgccgggtt ggtcgtcgca tagcagatat cttccttggtg 480
cggattgcgg atattgggga aacgcgcgtt cagcgcggcg atgatgtctt tggtttcac 540
gaccgagagc gtggtttggc tgacataggc gagtttgtcg gggtttctga cttcgagttt 600
tgccacatct ccgaccgttt cgacaaaaag cattttgccc ggcgcaagct gccccatcgt 660
tccttcgacc tcgacgtgcc ctttatgccc gatcatgatg atttcacagt cttgggcatc 720
cagtcgggcg acttccttat gcactttcgt caccagcggg caagtcgcat caaacacgcg 780
gaaaccgcgc tccgccgctt cttgccgcac cgccttcgat acgccgtgtg ccgaataaac 840
cagtgtcgcg ccgcggcgga cttccgccaa gtcttcaata aacaccgcac ctttttcacg 900
caggttgtcc acgacgaatt tgttgtgaac gacttcgtgg cgcacataaa tcggcgcgcc 960
gaactcttcc aaagcacgtt cgacaatact gattgcccg tccacaccag cgcagaagcc 1020
gcgcggattg gcaaggatga tggttttctc gttcataagc ccggtatttc gttttcagac 1080
ggcatcaata tttttcttct tgggttttac ggtggacgat gttgtccaac accgccaaca 1140
ccgcaccgac gcagataa 1158

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<210> 2320  
 <211> 385  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2320  
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 1 5 10 15  
 Gln Thr Ala Phe Val Leu Pro Lys His Ser Thr Pro Ala Ser Thr Phe  
 20 25 30  
 Ala Gln Ile Gly Phe Gly Phe Ala Leu Ala Ala Gln Leu Phe Gly Gln  
 35 40 45  
 Asp Glu His Asn Ala Phe Phe Arg Thr Leu Ala Phe Ala Tyr Gly Phe  
 50 55 60  
 Val Pro Pro Ser Ala Tyr Gly Cys Gln Tyr Phe Pro His Gln His Phe  
 65 70 75 80  
 Gly Arg Gly Arg Ala Cys Arg Tyr Ala Asp Phe Val Phe Ala Leu Lys  
 85 90 95  
 Pro Cys Ala Leu Gln Val Ala Cys Ile Ile His His Ile Arg Ile Asp  
 100 105 110  
 Ser Ala Arg Cys Arg His Phe Ala Gln Ala Val Ala Val Gly Arg Ile  
 115 120 125  
 Gly Arg Thr Asp His Asn His Asp Val Ala Leu Phe Cys Gln Leu Phe  
 130 135 140  
 Asp Gly Gly Leu Pro Val Gly Arg Arg Ile Ala Asp Ile Phe Leu Val  
 145 150 155 160

Arg Ile Ala Asp Ile Gly Glu Thr Arg Val Gln Arg Gly Asp Asp Val  
 165 170 175  
 Phe Gly Phe Ile Asp Arg Glu Arg Gly Leu Ala Asp Ile Gly Glu Phe  
 180 185 190  
 Val Gly Val Ser Asp Phe Glu Phe Cys His Ile Ser Asp Arg Phe Asp  
 195 200 205  
 Gln Lys His Phe Ala Arg Arg Lys Leu Pro His Arg Ser Phe Asp Leu  
 210 215 220  
 Asp Val Pro Leu Met Pro Asp His Asp Asp Phe Thr Val Leu Gly Ile  
 225 230 235 240  
 Gln Ser Gly Asp Phe Leu Met His Phe Arg His Gln Arg Ala Ser Arg  
 245 250 255  
 Ile Lys His Ala Glu Thr Ala Leu Arg Arg Phe Leu Pro His Arg Leu  
 260 265 270  
 Arg Tyr Ala Val Cys Arg Ile Asn Gln Cys Arg Ala Arg Arg His Phe  
 275 280 285  
 Arg Gln Val Phe Asn Lys His Arg Thr Phe Phe Thr Gln Val Val His  
 290 295 300  
 Asp Glu Phe Val Val Asn Asp Phe Val Ala His Ile Asn Arg Arg Ala  
 305 310 315 320  
 Glu Leu Phe Gln Ser Thr Phe Asp Asn Thr Asp Cys Pro Ile His Thr  
 325 330 335  
 Ser Ala Glu Ala Ala Arg Ile Gly Lys Asp Asp Gly Phe Leu Val His  
 340 345 350  
 Lys Pro Gly Ile Ser Phe Ser Asp Gly Ile Asn Ile Phe Leu Leu Gly  
 355 360 365  
 Phe Tyr Gly Gly Arg Cys Cys Pro Thr Pro Pro Thr Pro His Arg Arg  
 370 375 380

Arg  
 385

<210> 2321  
 <211> 918  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 2321  
 ttgcctcaaa ctggtccggc aaggcggcat catcgccatc gacaatattt tgttgaacgg 60  
 aagggtgatg cgccaagcgg cttttgatgc gccgcccagt gtcaaaattc tcaaagattt 120  
 caatcaaaac ctgccgaacg atacgcggat tgtcccatc accctgcccg tcggcgacgg 180  
 tttgacctg cttctgaaaa aataatgaag accaaattac cgctttttat catttgctg 240  
 tctgtgtctg cctcctgtgc ttccgtttta cccgttcagg agggcagccg aaccgaaatg 300

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ccgacacagg aaaatgcttc agacggcatt ccctatcccg ttcccactct gcaagaccgt 360
ttggactatc tggaaggcaa aatcgtccgg ctgtcgaacg aagtggaaat gttaaaccggg 420
aaagtcaaaag cattggagca tacgaaaata cacccttccg gcaggacata cgtccaaaaa 480
ctcgacgacc gcaaattgaa agagcattac ctcaataccg aaggcggcag cgcacccgca 540
cataccgtcg aaaccgcaca aaacctctac aatcaggcac tcaaacacta tcaaaacggc 600
aggttttctg ccgcagccgc cttgttgaag ggggcggacg gcggagacgg cggcagcatc 660
gcgcaacgca gtatgtacct gttgctgcaa agcagggcgc gtatggggaa ctgtgaatct 720
gtcatcgaaa tcggagggcg ttacgccaac cgtttcaaag acagcccaac cgcgcccga 780
gtcatattca aaatcggcga atgccaatac aggtttcagc aaaaagacat tgcaagggcg 840
acttggcgca gcctgataca gacctatccc ggcagcccgg cggcaaaacg cgcgcgcgca 900
gccgtacgca aacgatatg                                     918

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<210> 2322

<211> 304

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 2322

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Leu Pro Gln Thr Arg Pro Ala Arg Arg His His Arg His Arg Gln Tyr
 1              5              10              15

Phe Val Glu Arg Lys Gly Asp Ala Arg Ser Gly Phe Cys Ala Ala Gln
      20              25              30

Cys Gln Asn Ser Gln Arg Phe Gln Ser Lys Pro Ala Glu Arg Tyr Ala
      35              40              45

Asp Cys Pro His His Pro Ala Arg Arg Arg Arg Phe Asp Pro Ala Ser
      50              55              60

Glu Lys Ile Met Lys Thr Lys Leu Pro Leu Phe Ile Ile Trp Leu Ser
      65              70              75              80

Val Ser Ala Ser Cys Ala Ser Val Leu Pro Val Pro Glu Gly Ser Arg
      85              90              95

Thr Glu Met Pro Thr Gln Glu Asn Ala Ser Asp Gly Ile Pro Tyr Pro
      100             105             110

Val Pro Thr Leu Gln Asp Arg Leu Asp Tyr Leu Glu Gly Lys Ile Val
      115             120             125

Arg Leu Ser Asn Glu Val Glu Met Leu Asn Gly Lys Val Lys Ala Leu
      130             135             140

Glu His Thr Lys Ile His Pro Ser Gly Arg Thr Tyr Val Gln Lys Leu
      145             150             155             160

Asp Asp Arg Lys Leu Lys Glu His Tyr Leu Asn Thr Glu Gly Gly Ser
      165             170             175

Ala Ser Ala His Thr Val Glu Thr Ala Gln Asn Leu Tyr Asn Gln Ala
      180             185             190

Leu Lys His Tyr Gln Asn Gly Arg Phe Ser Ala Ala Ala Ala Leu Leu
      195             200             205

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Lys Gly Ala Asp Gly Gly Asp Gly Gly Ser Ile Ala Gln Arg Ser Met  
 210 215 220  
 Tyr Leu Leu Leu Gln Ser Arg Ala Arg Met Gly Asn Cys Glu Ser Val  
 225 230 235 240  
 Ile Glu Ile Gly Gly Arg Tyr Ala Asn Arg Phe Lys Asp Ser Pro Thr  
 245 250 255  
 Ala Pro Glu Val Ile Phe Lys Ile Gly Glu Cys Gln Tyr Arg Leu Gln  
 260 265 270  
 Gln Lys Asp Ile Ala Arg Ala Thr Trp Arg Ser Leu Ile Gln Thr Tyr  
 275 280 285  
 Pro Gly Ser Pro Ala Ala Lys Arg Ala Ala Ala Ala Val Arg Lys Arg  
 290 295 300

<210> 2323  
 <211> 918  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2323  
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 aagggtgatg cgcgaagcgg cttccgatgc gccgcccagc gtcggcatcc tcaaagattt 120  
 caatcaaaac ctgccgaacg acccgcgcat cgccccatc accctgcccg tcggcgacgg 180  
 cttgaccctg cttctgaaaa aataatgaag atcaaattac cgctttttat catttggtg 240  
 tctgtgtccg cctcctgtgc ttccgtttca ccggttccgg caggcagcca aaccgaaatg 300  
 tcgacacggg aaaatgcttc agacggcatt ccctatcccg ttccgacctt gcaagaccgt 360  
 ttggactatc tggaaggcaa aatcgctccg ctgtcgaacg aagtggaaac cttaaaccggc 420  
 aaagtcaaa cactggaaca cgcaaaaaca cattcttccg gcagggcata cgtccaaaaa 480  
 ctgcagcacc gcaagttgaa agagcattac ctcaataccg aaggcggcag cgcattccgca 540  
 catactgtcg aaaccgcaca aaacctctac aatcaggcac tcaaacta taaaagcggc 600  
 aagttttctg ccgtgcctc cctgttgaaa ggcgcggacg gaggcgacgg cggcagcatc 660  
 gcgcaacgca gtatgtacct gttgctgcaa agcagggcgc gtatgggcaa ctgcgaatcc 720  
 gtcacgaaa tcggaggggc ttacgccaac cgtttcaaag acagcccaac cgcgcctgaa 780  
 gccatgttca aaatcggcga atgccaatac aggccttcagc aaaaagacat tgcaagggcg 840  
 acttggcgca gcctgatata gacctatccc ggcagcccgg cggcaaaacg cgccgcccga 900  
 gccgtgcgca aacgatag 918

<210> 2324  
 <211> 305  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2324  
 Leu Pro Gln Thr Arg Pro Ser Arg Arg His His Arg His Arg Gln Tyr  
 1 5 10 15  
 Phe Ala Glu Arg Lys Gly Asp Ala Arg Ser Gly Phe Arg Cys Ala Ala

20					25					30					
Gln	Arg	Arg	His	Pro	Gln	Arg	Phe	Gln	Ser	Lys	Pro	Ala	Glu	Arg	Pro
	35						40					45			
Ala	His	Arg	Pro	His	His	Pro	Ala	Arg	Arg	Arg	Arg	Leu	Asp	Pro	Ala
	50					55					60				
Ser	Glu	Lys	Ile	Met	Lys	Ile	Lys	Leu	Pro	Leu	Phe	Ile	Ile	Trp	Leu
	65					70					75				80
Ser	Val	Ser	Ala	Ser	Cys	Ala	Ser	Val	Ser	Pro	Val	Pro	Ala	Gly	Ser
				85					90					95	
Gln	Thr	Glu	Met	Ser	Thr	Arg	Glu	Asn	Ala	Ser	Asp	Gly	Ile	Pro	Tyr
			100					105					110		
Pro	Val	Pro	Thr	Leu	Gln	Asp	Arg	Leu	Asp	Tyr	Leu	Glu	Gly	Lys	Ile
			115				120					125			
Val	Arg	Leu	Ser	Asn	Glu	Val	Glu	Thr	Leu	Asn	Gly	Lys	Val	Lys	Ala
	130					135					140				
Leu	Glu	His	Ala	Lys	Thr	His	Ser	Ser	Gly	Arg	Ala	Tyr	Val	Gln	Lys
	145					150					155				160
Leu	Asp	Asp	Arg	Lys	Leu	Lys	Glu	His	Tyr	Leu	Asn	Thr	Glu	Gly	Gly
				165					170					175	
Ser	Ala	Ser	Ala	His	Thr	Val	Glu	Thr	Ala	Gln	Asn	Leu	Tyr	Asn	Gln
			180					185					190		
Ala	Leu	Lys	His	Tyr	Lys	Ser	Gly	Lys	Phe	Ser	Ala	Ala	Ala	Ser	Leu
		195					200					205			
Leu	Lys	Gly	Ala	Asp	Gly	Gly	Asp	Gly	Gly	Ser	Ile	Ala	Gln	Arg	Ser
	210					215					220				
Met	Tyr	Leu	Leu	Leu	Gln	Ser	Arg	Ala	Arg	Met	Gly	Asn	Cys	Glu	Ser
	225					230					235				240
Val	Ile	Glu	Ile	Gly	Gly	Arg	Tyr	Ala	Asn	Arg	Phe	Lys	Asp	Ser	Pro
				245					250					255	
Thr	Ala	Pro	Glu	Ala	Met	Phe	Lys	Ile	Gly	Glu	Cys	Gln	Tyr	Arg	Leu
			260					265					270		
Gln	Gln	Lys	Asp	Ile	Ala	Arg	Ala	Thr	Trp	Arg	Ser	Leu	Ile	Gln	Thr
		275					280					285			
Tyr	Pro	Gly	Ser	Pro	Ala	Ala	Lys	Arg	Ala	Ala	Ala	Ala	Val	Arg	Lys
	290					295					300				
Arg															
305															

<210> 2325  
 <211> 921  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 2325  
 ttgcctcaag cttgtccggc aaggcggcat cattgccatc gacaatattt tgttgaacgg 60  
 aagggtgatg cgcgaagcgg cttccgatgc gccgccagc gtccggcatcc tcaaagattt 120  
 taatcaaaac ctgccgaacg atacgcggat tgtcccatc accctgcccg tcggcgacgg 180  
 tttgaccctg cttctgaaaa aataatgaag accaaattac cgctttttat catttggtg 240  
 tccgtatccg ccgcctgttc ttcccctgtt tcccgcataa ttcaggatat gcggctcgaa 300  
 ccgcaggcag aggcaggtag ttcggacgct attccctatc ccgttccac tctgcaagac 360  
 cgtttggtt atctggaagg cacactcgtc cgctgtcga acgaagtga aaccttaaac 420  
 ggcaaagtca aagcactgga gcatgcgaaa acacaccctt ccagcagggc atacgtccaa 480  
 aaactcgacg accgcaagtt gaaagagcat tacctcaata ccgaaggcgg cagcgcatcc 540  
 gcacataaccg tcgaaaccgc acaaaacctc tacaatcagg cactcaaaca ctataaaagc 600  
 ggcaggtttt ctgcgcgtgc ctccctgttg aaaggcgcgg acggaggcga cggcggcagc 660  
 atcgcgcaac gcagtatgta cctgttgctg caaagcaggg cgcgatggtg caactgcgaa 720  
 tccgtcatcg aaatcggagg gcgttacgcc aaccgtttca aagacagccc aaccgcgcct 780  
 gaagccatgt tcaaaatcgg cgaatgccaa tacaggcttc agcaaaaaga cattgcaagg 840  
 gcgacttggc gcagcctgat acagacctat cccggcagcc cggcggcaaa acgcgcgcgc 900  
 gcagccgtgc gcaaacgata g 921

<210> 2326  
 <211> 305  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 2326  
 Leu Pro Gln Ala Cys Pro Ala Arg Arg His His Cys His Arg Gln Tyr  
 1 5 10 15  
 Phe Val Glu Arg Lys Gly Asp Ala Arg Ser Gly Phe Arg Cys Ala Ala  
 20 25 30  
 Gln Arg Arg His Pro Gln Arg Phe Ser Lys Pro Ala Glu Arg Tyr Ala  
 35 40 45  
 Asp Cys Pro His His Pro Ala Arg Arg Arg Arg Phe Asp Pro Ala Ser  
 50 55 60  
 Glu Lys Ile Met Lys Thr Lys Leu Pro Leu Phe Ile Ile Trp Leu Ser  
 65 70 75 80  
 Val Ser Ala Ala Cys Ser Ser Pro Val Ser Arg Asn Ile Gln Asp Met  
 85 90 95  
 Arg Leu Glu Pro Gln Ala Glu Ala Gly Ser Ser Asp Ala Ile Pro Tyr  
 100 105 110  
 Pro Val Pro Thr Leu Gln Asp Arg Leu Asp Tyr Leu Glu Gly Thr Leu  
 115 120 125  
 Val Arg Leu Ser Asn Glu Val Glu Thr Leu Asn Gly Lys Val Lys Ala  
 130 135 140



Leu Glu His Ala Lys Thr His Pro Ser Ser Arg Ala Tyr Val Gln Lys  
 145 150 155 160  
 Leu Asp Asp Arg Lys Leu Lys Glu His Tyr Leu Asn Thr Glu Gly Gly  
 165 170 175  
 Ser Ala Ser Ala His Thr Val Glu Thr Ala Gln Asn Leu Tyr Asn Gln  
 180 185 190  
 Ala Leu Lys His Tyr Lys Ser Gly Arg Phe Ser Ala Ala Ala Ser Leu  
 195 200 205  
 Leu Lys Gly Ala Asp Gly Gly Asp Gly Gly Ser Ile Ala Gln Arg Ser  
 210 215 220  
 Met Tyr Leu Leu Leu Gln Ser Arg Ala Arg Met Gly Asn Cys Glu Ser  
 225 230 235 240  
 Val Ile Glu Ile Gly Gly Arg Tyr Ala Asn Arg Phe Lys Asp Ser Pro  
 245 250 255  
 Thr Ala Pro Glu Ala Met Phe Lys Ile Gly Glu Cys Gln Tyr Arg Leu  
 260 265 270  
 Gln Gln Lys Asp Ile Ala Arg Ala Thr Trp Arg Ser Leu Ile Gln Thr  
 275 280 285  
 Tyr Pro Gly Ser Pro Ala Ala Lys Arg Ala Ala Ala Ala Val Arg Lys  
 290 295 300  
 Arg  
 305

<210> 2327  
 <211> 363  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 2327  
 ttgggttgcc ggcaggcggc atcccatcat ttttgccaag gcaacaaatt atttggcggc 60  
 atctttcatt ttgtctgccg cttcctgagt cgcgtcggca gctttgttca aagtatcttt 120  
 agctgcttca gttacagctt ctttggcttc agttacagct tcctcggcac ttgcctttgc 180  
 atcagccgca gcatctttga cttggtcttt cgcttcttcg acggcagaag cggcagactc 240  
 ggcggcagaa gccgcagtgt ctttaacatc ggactcaacg gcttgaaccg cttccttaac 300  
 ctcctgtttg gcttcttgcg aacaagctgc caaggcagcc gccatcattg cggcaatcaa 360  
 taa 363

<210> 2328  
 <211> 120  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 2328  
 Leu Gly Cys Arg Gln Ala Ala Ser His His Phe Cys Gln Gly Asn Lys  
 1 5 10 15

Leu Phe Gly Gly Ile Phe His Phe Val Cys Arg Phe Leu Ser Arg Val  
                   20                  25                  30  
 Gly Ser Phe Val Gln Ser Ile Phe Ser Cys Phe Ser Tyr Ser Phe Phe  
           35                  40                  45  
 Gly Phe Ser Tyr Ser Phe Leu Gly Thr Cys Leu Cys Ile Ser Arg Ser  
       50                  55                  60  
 Ile Phe Asp Leu Val Phe Arg Phe Phe Asp Gly Arg Ser Gly Arg Leu  
       65                  70                  75                  80  
 Gly Gly Arg Ser Arg Ser Val Phe Asn Ile Gly Leu Asn Gly Leu Asn  
                   85                  90                  95  
 Arg Phe Leu Asn Leu Leu Phe Gly Phe Leu Arg Thr Ser Cys Gln Gly  
           100                  105                  110  
 Ser Arg His His Cys Gly Asn Gln  
       115                  120

<210> 2329  
 <211> 363  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2329  
 ttgggttgcc ggcaggcggc atcccatcat ttttgccaag gcaacaaatt atttggcggc 60  
 atctttcatt ttgtctgccg ctctctgagt cgcgctcgga gctttgttca aagtatcttt 120  
 agctgcttca gttacagctt ctttggtctt agttacagct tcctcggcac ttgcctttgc 180  
 atcagccgca gcatctttga cttggtcttt cgcttcttcg acggcagaag cggcagactc 240  
 ggcggcagaa gccgcagtgt ctttaacatc ggactcaacg gcttgaaccg cttccttaac 300  
 ctctggtttg gcttcttgcg aacaagctgc caaggcagcc gccatcattg cggaatcaa 360  
 taa 363

<210> 2330  
 <211> 120  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2330  
 Leu Gly Cys Arg Gln Ala Ala Ser His His Phe Cys Gln Gly Asn Lys  
       1                  5                  10                  15  
 Leu Phe Gly Gly Ile Phe His Phe Val Cys Arg Phe Leu Ser Arg Val  
           20                  25                  30  
 Gly Ser Phe Val Gln Ser Ile Phe Ser Cys Phe Ser Tyr Ser Phe Phe  
           35                  40                  45  
 Gly Phe Ser Tyr Ser Phe Leu Gly Thr Cys Leu Cys Ile Ser Arg Ser  
       50                  55                  60  
 Ile Phe Asp Leu Val Phe Arg Phe Phe Asp Gly Arg Ser Gly Arg Leu

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<400> 2332
Met Ser Ser Leu Met Thr Leu Phe Ser Val Leu Val Pro Met Phe Ala
  1                      5                      10                      15
Gly Phe Phe Ile Arg Val Pro Lys Pro Tyr Leu Pro Ala Ser Asp Lys
                20                      25                      30
Val Leu Ser Val Leu Val Tyr Ala Val Leu Leu Leu Ile Gly Val Ser
          35                      40                      45
Leu Ser Arg Val Glu Asp Leu Gly Ser Arg Leu Gly Asp Met Ala Leu
      50                      55                      60
Thr Val Leu Trp Leu Phe Val Cys Thr Val Gly Ala Asn Leu Leu Ala
    65                      70                      75                      80

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Leu Ala Val Leu Gly Lys Leu Ser Pro Trp Arg Ile Gly Gly Lys Gly  
                     85                                    90                                    95  
 Lys Gly Val Ser Val Gly Val Ser Gly Ser Val Arg Gln Leu Gly Cys  
                     100                                    105                                    110  
 Val Leu Leu Gly Phe Val Ser Gly Lys Leu Met Cys Asp Ile Trp Met  
                     115                                    120                                    125  
 Pro Ser Glu Asn Ala Gly Met Tyr Cys Leu Met Leu Leu Val Phe Leu  
                     130                                    135                                    140  
 Ile Gly Val Gln Leu Lys Ser Ser Gly Val Ser Leu Arg Gln Val Leu  
                     145                                    150                                    155                                    160  
 Leu Asn Arg Arg Gly Ile Arg Leu Ser Val Trp Phe Ile Leu Ser Ser  
                     165                                    170                                    175  
 Leu Ser Gly Gly Leu Leu Phe Ala Ala Ser Ala Asp Gly Val Ser Trp  
                     180                                    185                                    190  
 Thr Lys Gly Leu Ala Met Ala Ser Gly Phe Gly Trp Tyr Ser Leu Ser  
                     195                                    200                                    205  
 Gly Leu Val Met Thr Glu Ala Tyr Gly Ala Val Trp Gly Ser Ile Met  
                     210                                    215                                    220  
 Leu Leu Asn Asp Leu Ala Arg Glu Leu Phe Ala Leu Ala Phe Ile Pro  
                     225                                    230                                    235                                    240  
 Leu Leu Met Lys Arg Phe Pro Asp Ala Ala Val Gly Val Gly Gly Ala  
                     245                                    250                                    255  
 Thr Ser Met Asp Phe Thr Leu Pro Val Ile Gln Gly Ala Gly Gly Leu  
                     260                                    265                                    270  
 Glu Val Val Pro Val Ala Val Ser Phe Gly Val Val Val Asn Ile Ala  
                     275                                    280                                    285  
 Ala Pro Phe Leu Met Val Val Phe Ser Thr Leu Gly  
                     290                                    295                                    300

<210> 2333

<211> 903

<212> DNA

<213> Neisseria meningitidis

<400> 2333

atggacagcc tgatgacgtt gctttcggta ttgataccga tgtttgccgg attttttatc 60  
 cgtgtgccca agccttacct gcccgctttg gataaggtgc tatcggtcctt ggtgtatgct 120  
 gtgctgctgc tgatcggcgt ctcggtgtcg cgcgtggagg atttgggttc gcggttgac 180  
 gatatggcgt tgacggttct gtggctgttt gtttgtacgg tcggggcgaa cctgcttgct 240  
 ttggcagtgt tgggaaagt attcccgtag cgataaagg ggaaaggaa gggcgtttcg 300  
 gtcggcgtgt cgggcagtgt ggggcagctc ggatgcgtgc tgctcggatt tgcattcggc 360  
 aaactgatgc gcgatatttg gatgccgtct gaaagcgcgg gcatgtattg tctgatgctg 420  
 ctggtgttcc tcatcggcgt acagctcaaa agcagcggcg tatcggttgcg gcaggttttg 480

gtcaaccgca ggggtattcg gttgtcggtc tggtttatgc tttcatctct ttcgggcggg 540  
 ctgctgtttg ccgcatcgac agacgggtgtg tcgtggacga aaggtttggc gatggcttcc 600  
 ggcttcgggtt ggtattccct ctcggttttg gtcatgaccg aggccttacgg cgcggtatgg 660  
 ggcagcatca tgctgctgaa cgatttggca cgagagctgt ttgcactggc atttatcccg 720  
 ctgctgatga agcgttttcc agatgcggcg gtgggggttg gcggtgacgac cagtatggat 780  
 tttacattgc ccgtgattca ggggtgcgggc ggtttgggaag tcgtgccggg agcggtcagc 840  
 ttcggcgtgg tgggtcaatat cgccgccccg tttctgatgg tgggtgtttc cgctttgggt 900  
 tga 903

<210> 2334

<211> 300

<212> PRT

<213> Neisseria meningitidis

<400> 2334

Met Asp Ser Leu Met Thr Leu Leu Ser Val Leu Ile Pro Met Phe Ala  
 1 5 10 15

Gly Phe Phe Ile Arg Val Pro Lys Pro Tyr Leu Pro Ala Leu Asp Lys  
 20 25 30

Val Leu Ser Val Leu Val Tyr Ala Val Leu Leu Leu Ile Gly Val Ser  
 35 40 45

Leu Ser Arg Val Glu Asp Leu Gly Ser Arg Leu Asp Asp Met Ala Leu  
 50 55 60

Thr Val Leu Trp Leu Phe Val Cys Thr Val Gly Ala Asn Leu Leu Ala  
 65 70 75 80

Leu Ala Val Leu Gly Lys Leu Phe Pro Trp Arg Ile Lys Gly Lys Gly  
 85 90 95

Lys Gly Val Ser Val Gly Val Ser Gly Ser Val Gly Gln Leu Gly Cys  
 100 105 110

Val Leu Leu Gly Phe Ala Phe Gly Lys Leu Met Arg Asp Ile Trp Met  
 115 120 125

Pro Ser Glu Ser Ala Gly Met Tyr Cys Leu Met Leu Leu Val Phe Leu  
 130 135 140

Ile Gly Val Gln Leu Lys Ser Ser Gly Val Ser Leu Arg Gln Val Leu  
 145 150 155 160

Val Asn Arg Arg Gly Ile Arg Leu Ser Val Trp Phe Met Leu Ser Ser  
 165 170 175

Leu Ser Gly Gly Leu Leu Phe Ala Ala Ser Thr Asp Gly Val Ser Trp  
 180 185 190

Thr Lys Gly Leu Ala Met Ala Ser Gly Phe Gly Trp Tyr Ser Leu Ser  
 195 200 205

Gly Leu Val Met Thr Glu Ala Tyr Gly Ala Val Trp Gly Ser Ile Met

210	215	220
Leu Leu Asn Asp Leu Ala Arg Glu Leu Phe Ala Leu Ala Phe Ile Pro		
225	230	235 240
Leu Leu Met Lys Arg Phe Pro Asp Ala Ala Val Gly Val Gly Gly Ala		
	245	250 255
Thr Ser Met Asp Phe Thr Leu Pro Val Ile Gln Gly Ala Gly Gly Leu		
	260	265 270
Glu Val Val Pro Val Ala Val Ser Phe Gly Val Val Val Asn Ile Ala		
	275	280 285
Ala Pro Phe Leu Met Val Val Phe Ser Ala Leu Gly		
	290	295 300

<210> 2335  
 <211> 903  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2335  
 atggacagcc tgatgacggt gctttcggta ttgataccga tgtttgccgg attttttattc 60  
 cgtgtgccca agccttacct gcccgctttg gataaggtgc taccggtctt ggtgtatgct 120  
 gtgctgctgc tgatcggcgt ctcggtgtcg cgcgtggagg atttgggttc gcggttggac 180  
 gatattggcgt tgacggttct gtggtgtgtt gtttgtacgg tcggggcgaa cctgcttgct 240  
 ttggcagtgt tgggaaagt attcccggtg cggataaagg ggaaagggaa gggcgtttcg 300  
 gtcggtgtgt cgggcagtgt ggggcagctc ggatgcgtgc tgctcggatt tgcattccgc 360  
 aaactgatgc gcgatatttg gatgccgtct gaaaacgcgg gtatgtattg tctgatgctg 420  
 ctggtgctcn tcatcggcgt acagctcaaa agcagcggcg taccggttgc gcagggtttg 480  
 gtcaaccgca ggggtattcg gttgtcggtc tggtttatgc tttcatctct ttcaggcggg 540  
 ctgctgtttg ccgcattcgc agacggtgtg tcgtgggtga aagggttggc gatggcttcc 600  
 ggcttcgggt ggtattccct ctcggttttg gtgatgaccg aggccttacg ccggttatgg 660  
 ggcagtatcg cgtttttgaa cgatttgga cgagagctgt tcgcgctggc atttattccg 720  
 ctgctgatga agcgttttcc cgatgcggca gtgggggtcg gcggcgcgac cagtatggat 780  
 ttcacattgc ccgtgattcg ggtgcgggc ggcttggaag ccgtaccggg agcggtcagc 840  
 ttccggcgtg tgggtcaatat cgcgcgtccg tttctgatgg tgggtgtttc cgctttgggc 900  
 tga 903

<210> 2336  
 <211> 300  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2336  
 Met Asp Ser Leu Met Thr Leu Leu Ser Val Leu Ile Pro Met Phe Ala  
 1 5 10 15  
 Gly Phe Phe Ile Arg Val Pro Lys Pro Tyr Leu Pro Ala Leu Asp Lys  
 20 25 30  
 Val Leu Ser Val Leu Val Tyr Ala Val Leu Leu Leu Ile Gly Val Ser  
 35 40 45

Leu Ser Arg Val Glu Asp Leu Gly Ser Arg Leu Asp Asp Met Ala Leu  
50 55 60

Thr Val Leu Trp Leu Phe Val Cys Thr Val Gly Ala Asn Leu Leu Ala  
65 70 75 80

Leu Ala Val Leu Gly Lys Leu Phe Pro Trp Arg Ile Lys Gly Lys Gly  
85 90 95

Lys Gly Val Ser Val Gly Val Ser Gly Ser Val Gly Gln Leu Gly Cys  
100 105 110

Val Leu Leu Gly Phe Ala Ser Gly Lys Leu Met Arg Asp Ile Trp Met  
115 120 125

Pro Ser Glu Asn Ala Gly Met Tyr Cys Leu Met Leu Leu Val Leu Xaa  
130 135 140

Ile Gly Val Gln Leu Lys Ser Ser Gly Val Ser Leu Arg Gln Val Leu  
145 150 155 160

Val Asn Arg Arg Gly Ile Arg Leu Ser Val Trp Phe Met Leu Ser Ser  
165 170 175

Leu Ser Gly Gly Leu Leu Phe Ala Ala Ser Ala Asp Gly Val Ser Trp  
180 185 190

Val Lys Gly Leu Ala Met Ala Ser Gly Phe Gly Trp Tyr Ser Leu Ser  
195 200 205

Gly Leu Val Met Thr Glu Ala Tyr Gly Ala Val Trp Gly Ser Ile Ala  
210 215 220

Leu Leu Asn Asp Leu Ala Arg Glu Leu Phe Ala Leu Ala Phe Ile Pro  
225 230 235 240

Leu Leu Met Lys Arg Phe Pro Asp Ala Ala Val Gly Val Gly Gly Ala  
245 250 255

Thr Ser Met Asp Phe Thr Leu Pro Val Ile Arg Gly Ala Gly Gly Leu  
260 265 270

Glu Ala Val Pro Val Ala Val Ser Phe Gly Val Val Val Asn Ile Ala  
275 280 285

Ala Pro Phe Leu Met Val Val Phe Ser Ala Leu Gly  
290 295 300

<210> 2337

<211> 387

<212> DNA

<213> Neisseria gonorrhoeae

<400> 2337

atgtcttggc acatattcca agttgcaggg ataccgaccg cttcgatggc acaatctacg 60  
ccgtcttcgc cgacgatggc gaaaacttgt ttggagacgt cgccggaagc ggggctgatg 120

gtatgggtcg cgcccaactc tttcgccggt ttcaaacggt tttcgtccat atcgcacacg 180  
 ataatggcgg cagggctata cagttgggcg gtcaacaagg cggacatacc gacagggccg 240  
 gcacctgcga tgaatacggg atcgccgggt ttacatcgc cgtattgcac gccgatttcg 300  
 tgggcggtcg gtaaagcgtc gctcaacagc agggcgattt cttcgttgac gttgtcgtgc 360  
 ggcggcacga ggctgttgtc ggcataa 387

<210> 2338

<211> 128

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2338

Met Ser Trp His Ile Phe Gln Val Ala Gly Ile Pro Thr Ala Ser Met  
 1 5 10 15

Ala Gln Ser Thr Pro Ser Ser Pro Thr Met Ala Lys Thr Cys Leu Glu  
 20 25 30

Thr Ser Pro Glu Ala Gly Leu Met Val Trp Val Ala Pro Asn Ser Phe  
 35 40 45

Ala Gly Phe Lys Arg Phe Ser Ser Ile Ser His Thr Ile Met Ala Ala  
 50 55 60

Gly Leu Tyr Ser Trp Ala Val Asn Lys Ala Asp Ile Pro Thr Gly Pro  
 65 70 75 80

Ala Pro Ala Met Asn Thr Val Ser Pro Gly Phe Thr Ser Pro Tyr Cys  
 85 90 95

Thr Pro Ile Ser Trp Ala Val Gly Lys Ala Ser Leu Asn Ser Arg Ala  
 100 105 110

Ile Ser Ser Leu Thr Leu Ser Cys Gly Gly Thr Arg Leu Leu Ser Ala  
 115 120 125

<210> 2339

<211> 387

<212> DNA

<213> Neisseria meningitidis

<400> 2339

atgtcttggc acatattcca tgtagcaggg ataccgacgg cttcgatggc gcaatccacg 60  
 cagtcttcgc cgacgatggc aaagacttgt ttggatactt cgccggaagc agggttaatg 120  
 gtatgggtcg cacccaattc tttcgccagt ttcaaacggt tttcgtccat atcgcaaacg 180  
 atgatggcgg cgggactgta cagttgggcg gtcaacaggg cggacatacc gacagggcct 240  
 gccccagcga tgaatacggg gtcgccgggt ttgacatcgc cgtattgcac gccgatttcg 300  
 tgggcggtcg gcaaagcgtc gctcaacaac agggcgattt cttcgttgac attatcgggc 360  
 agcggaaacga ggctgttgtc ggcataa 387

<210> 2340



<211> 128  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2340  
 Met Ser Trp His Ile Phe His Val Ala Gly Ile Pro Thr Ala Ser Met  
           1                  5                  10                  15  
 Ala Gln Ser Thr Pro Ser Ser Pro Thr Met Ala Lys Thr Cys Leu Asp  
                   20                  25                  30  
 Thr Ser Pro Glu Ala Gly Leu Met Val Trp Val Ala Pro Asn Ser Phe  
                   35                  40                  45  
 Ala Ser Phe Lys Arg Phe Ser Ser Ile Ser Gln Thr Met Met Ala Ala  
           50                  55                  60  
 Gly Leu Tyr Ser Trp Ala Val Asn Arg Ala Asp Ile Pro Thr Gly Pro  
           65                  70                  75                  80  
 Ala Pro Ala Met Asn Thr Val Ser Pro Gly Leu Thr Ser Pro Tyr Cys  
                   85                  90                  95  
 Thr Pro Ile Ser Trp Ala Val Gly Lys Ala Ser Leu Asn Asn Arg Ala  
                   100                  105                  110  
 Ile Ser Ser Leu Thr Leu Ser Gly Ser Gly Thr Arg Leu Leu Ser Ala  
           115                  120                  125

<210> 2341  
 <211> 387  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2341  
 atgtcttggc acatattcca agttgcaggg ataccgacgg cttcgatcgc gcagtccacg 60  
 ccgtcttcgc cgacgatagc ggcaacttgc ttgcttacat cgccggaagc agggttaatg 120  
 gtatgggttg cgcccaactc tttcgccagt ttcaaacggt tttcgtccat atcgcaaaca 180  
 atgatggcgg cggggctgta cagttgggcg gtcggcaagg cggacatacc gacaggagcg 240  
 gcacctgcga tgaatacggg gtcgccgggt ttgacatcgc cgtattgcac gccgatttcg 300  
 tgtgcggtcg gcaaagcgtc gctcaacaac agggcgactt cttcgttgac gttgtcgggc 360  
 agcggcacga ggctgttgtc ggcataa 387

<210> 2342  
 <211> 128  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2342  
 Met Ser Trp His Ile Phe Gln Val Ala Gly Ile Pro Thr Ala Ser Ile  
           1                  5                  10                  15

Ala Gln Ser Thr Pro Ser Ser Pro Thr Ile Ala Ala Thr Cys Leu Leu  
20 25 30

Thr Ser Pro Glu Ala Gly Leu Met Val Trp Val Ala Pro Asn Ser Phe  
35 40 45

Ala Ser Phe Lys Arg Phe Ser Ser Ile Ser Gln Thr Met Met Ala Ala  
50 55 60

Gly Leu Tyr Ser Trp Ala Val Gly Lys Ala Asp Ile Pro Thr Gly Ala  
65 70 75 80

Ala Pro Ala Met Asn Thr Val Ser Pro Gly Leu Thr Ser Pro Tyr Cys  
85 90 95

Thr Pro Ile Ser Cys Ala Val Gly Lys Ala Ser Leu Asn Asn Arg Ala  
100 105 110

Thr Ser Ser Leu Thr Leu Ser Gly Ser Gly Thr Arg Leu Leu Ser Ala  
115 120 125

<210> 2343  
<211> 375  
<212> DNA  
<213> *Neisseria gonorrhoeae*

<400> 2343  
atgccgtggt ccaaagccag ttggacttcg cccggagtgg caacgccggg aatcagggga 60  
atgccgctgt tgcggccggc tctggcgagg gattcgtgca aaccggggct gatggcgaaa 120  
accgcgcctg cgtcttcgac ggctttgagc tggtcgggat tggttaccgt acctgcgcgc 180  
atgatggcgt tgggcatttc ttgggcaatc aggcgggatg cctcgagtcg gacgggggtg 240  
cgcaaggtaa tttcgagggt ggggatgccg ccttcgacaa gggcgcgagg caaatcgacg 300  
gcggtgctta agtcgtcaat cgccatcaca ggcacaactg cgccggcggg caggatttcg 360  
cggggggtca gttga 375

<210> 2344  
<211> 124  
<212> PRT  
<213> *Neisseria gonorrhoeae*

<400> 2344  
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1 5 10 15

Gly Ile Arg Gly Met Pro Leu Leu Arg Pro Ala Leu Ala Arg Asp Ser  
20 25 30

Cys Lys Pro Gly Leu Met Ala Lys Thr Ala Pro Ala Ser Ser Thr Ala  
35 40 45

Leu Ser Cys Ser Gly Leu Val Thr Val Pro Ala Pro Met Met Ala Leu

50

55

60

Gly Ile Ser Leu Ala Ile Arg Arg Met Ala Ser Ser Pro Thr Gly Val  
65 70 75 80

Arg Lys Val Ile Ser Arg Val Gly Met Pro Pro Ser Thr Arg Ala Arg  
85 90 95

Asp Lys Ser Thr Ala Val Leu Lys Ser Ser Ile Ala Ile Thr Gly Thr  
100 105 110

Thr Ala Pro Ala Val Arg Ile Ser Arg Gly Val Ser  
115 120

<210> 2345

<211> 432

<212> DNA

<213> Neisseria meningitidis

<400> 2345

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atgccgtgtt tgtggccggc tttggcgagg gattcatgca gccccgggct gatggcgaaa 120  
accgcgcctg cgtcttcgac ggctttgagc tggttcgggat tggttaccgt acctgcgccg 180  
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cgcaggggtga tttcgagggt agggatgccg ctttcgacaa gggcgtggga caaatcgatg 300  
gcggtgctta agtcgtcaat cgccattacc ggcacaactg cgccggcggt caaaatttcg 360  
cggggggtca gtttgacat ttcggttctc cggttggaat ggggtatttt attaagatgg 420  
gacaggttgt ag 432

<210> 2346

<211> 143

<212> PRT

<213> Neisseria meningitidis

<400> 2346

Met Pro Cys Ser Lys Ala Ser Trp Ile Ser Pro Gly Val Ala Thr Pro  
1 5 10 15

Gly Ile Arg Gly Met Pro Leu Leu Trp Pro Ala Leu Ala Arg Asp Ser  
20 25 30

Cys Ser Pro Gly Leu Met Ala Lys Thr Ala Pro Ala Ser Ser Thr Ala  
35 40 45

Leu Ser Cys Ser Gly Leu Val Thr Val Pro Ala Pro Thr Met Ala Leu  
50 55 60

Gly Thr Ser Leu Ala Ile Arg Arg Met Ala Ser Arg Pro Thr Gly Val  
65 70 75 80

Arg Arg Val Ile Ser Arg Val Gly Met Pro Pro Ser Thr Arg Ala Trp  
85 90 95

Asp Lys Ser Met Ala Val Leu Lys Ser Ser Ile Ala Ile Thr Gly Thr

100	105	110
Thr Ala Pro Ala Val Lys Ile Ser Arg Gly Val Ser Leu Asp Ile Ser		
115	120	125
Val Leu Arg Val Glu Trp Gly Ile Leu Leu Arg Trp Asp Arg Leu		
130	135	140

<210> 2347  
 <211> 432  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2347  
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 atgccgtgt tgtggccggc ttggcgagg gattcatgca gcccgggct gatggcgaaa 120  
 accgcgcctg cgtcttcgac ggctttgagc tggttcgggat tggttaccgt acctgcgccg 180  
 acgatggcgt tgggcacttc ttggcaatc aggcgggatg catcgaggcc gacaggggtg 240  
 cgcaggggtga tttcgagggg agggatgccg ccttcgacaa gggcgtggga caaatcgatg 300  
 gcggtgctta agtcgtcaat cgccattacc ggcacaactg cgccggcggg caaaatttcg 360  
 cggggggtca gtttgacat ttcggttctc cgggtggaat ggggtatttt attaagatgg 420  
 gacaggttgt ag 432

<210> 2348  
 <211> 143  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2348  
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 20 25 30  
 Cys Ser Pro Gly Leu Met Ala Lys Thr Ala Pro Ala Ser Ser Thr Ala  
 35 40 45  
 Leu Ser Cys Ser Gly Leu Val Thr Val Pro Ala Pro Thr Met Ala Leu  
 50 55 60  
 Gly Thr Ser Leu Ala Ile Arg Arg Met Ala Ser Arg Pro Thr Gly Val  
 65 70 75 80  
 Arg Arg Val Ile Ser Arg Val Gly Met Pro Pro Ser Thr Arg Ala Trp  
 85 90 95  
 Asp Lys Ser Met Ala Val Leu Lys Ser Ser Ile Ala Ile Thr Gly Thr  
 100 105 110  
 Thr Ala Pro Ala Val Lys Ile Ser Arg Gly Val Ser Leu Asp Ile Ser  
 115 120 125  
 Val Leu Arg Val Glu Trp Gly Ile Leu Leu Arg Trp Asp Arg Leu  
 130 135 140

<210> 2349  
 <211> 867  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 2349  
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 caaacgctgg caaccgttaa cggtcagaaa atcgacagtt ccgtcatcga tgcgcagggtt 120  
 gccgcattcc gtgcggaaaa cagccgtgcc gaagacacgc cgcaactgcg ccaatccctg 180  
 ctgaaaaacg aagtgggtcaa caccgtggtc gcacaggaag tgaaacgcct gaaactcgac 240  
 cggtcggcag agtttaaaga tgcgcttgcc aaattgcgtg ccgaagcgaa aaagtcgggc 300  
 gacgacaaga aaccgtcctt caaaaccgtt tggcaggcgg taaaatatgg cttgaacggc 360  
 gaggcatacg cactgcatat cgccaaaacc caaccggttt ccgagcagga agtaaaagcc 420  
 gtttacgaca atatcagcgg tttttataaaa ggcacgcagg aagtccagtt gggcgaaatc 480  
 ctgaccgaca aggaagaaaa tgcgaaaaaa gcggttgccg atttgaaggc gaaaaaaggt 540  
 tttgatgccg ttttgaaaaca atactcgctc aacgaccgca ccaaaccggac cggcgcgccg 600  
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 aaggacttga aaaaaggcga atttacggca acgccgctga aaaacggcga tttctacggc 720  
 gtttattatg tcaacgacag ccgcgaggtg aaagtgcctt cttttgacga aatgaaagga 780  
 cagattgccg gcaaccctca ggcggaacgg attgaccgtg ccgtctgtgc gctgttggtg 840  
 aaggcaaaaca tcaaaccctgc aaaataa 867

<210> 2350  
 <211> 288  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 2350  
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           20                    25                    30  
 Ser Ser Val Ile Asp Ala Gln Val Ala Ala Phe Arg Ala Glu Asn Ser  
       35                    40                    45  
 Arg Ala Glu Asp Thr Pro Gln Leu Arg Gln Ser Leu Leu Glu Asn Glu  
       50                    55                    60  
 Val Val Asn Thr Val Val Ala Gln Glu Val Lys Arg Leu Lys Leu Asp  
       65                    70                    75                    80  
 Arg Ser Ala Glu Phe Lys Asp Ala Leu Ala Lys Leu Arg Ala Glu Ala  
                     85                    90                    95  
 Lys Lys Ser Gly Asp Asp Lys Lys Pro Ser Phe Lys Thr Val Trp Gln  
           100                    105                    110  
 Ala Val Lys Tyr Gly Leu Asn Gly Glu Ala Tyr Ala Leu His Ile Ala  
       115                    120                    125  
 Lys Thr Gln Pro Val Ser Glu Gln Glu Val Lys Ala Val Tyr Asp Asn

130	135	140
Ile Ser Gly Phe Tyr Lys Gly Thr Gln Glu Val Gln Leu Gly Glu Ile		
145	150	155 160
Leu Thr Asp Lys Glu Glu Asn Ala Lys Lys Ala Val Ala Asp Leu Lys		
	165	170 175
Ala Lys Lys Gly Phe Asp Ala Val Leu Lys Gln Tyr Ser Leu Asn Asp		
	180	185 190
Arg Thr Lys Arg Thr Gly Ala Pro Asp Gly Tyr Val Pro Leu Lys Asp		
	195	200 205
Leu Glu Gln Gly Val Pro Pro Leu Tyr Gln Ala Ile Lys Asp Leu Lys		
	210	215 220
Lys Gly Glu Phe Thr Ala Thr Pro Leu Lys Asn Gly Asp Phe Tyr Gly		
225	230	235 240
Val Tyr Tyr Val Asn Asp Ser Arg Glu Val Lys Val Pro Ser Phe Asp		
	245	250 255
Glu Met Lys Gly Gln Ile Ala Gly Asn Leu Gln Ala Glu Arg Ile Asp		
	260	265 270
Arg Ala Val Cys Ala Leu Leu Gly Lys Ala Asn Ile Lys Pro Ala Lys		
	275	280 285

<210> 2351  
 <211> 867  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2351  
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 caaacgctgg caaccgtcaa cggtcagaaa atcgacagtt ccgtcatcga tgcgcagggtt 120  
 gccgcattcc gtgcggaaaa cagccgtgcc gaagacacgc cgcaactgcg ccaatccctg 180  
 ctggaaaacg aagtgggtcaa taccgtgggtc gcacaggaag tgaaacgcct gaaactcgac 240  
 cggtcggcag agtttaaaaa tgcgcttgcc aaattgcgtg ccgaagcgaa aaagtcgggc 300  
 gacgacaaga aaccgtcctt caaaaccgtt tggcaggcgg taaaatatgg cttgaacggc 360  
 gaggcatacg cattgcatat cgccaaaacc caaccgggtt ccgagcagga agtaaaagcc 420  
 gcatatgaca atatcagcgg tttttacaaa ggtacgcagg aagtccagtt gggcgaaatc 480  
 ctgaccgaca aggaagaaaa tgcaaaaaaa gcggttgccg acttgaaggc gaaaaaaggt 540  
 ttgatgccc tcttgaaaca atattccctc aacgaccgta ccaaacagac cgggtgcgccg 600  
 gtccgatatg tgccgctgaa agatttgga caggggtgtt cgccgcttta tcaggcaatt 660  
 aaggacttga aaaaaggcga atttacggca acgcccgtga aaaacggcga tttctacggc 720  
 gtttattatg tcaacgacag ccgcgaggta aaagtgcctt cttttgatga aatgaaagga 780  
 cagattgcgg gcaaccttca ggcggaacgg attgaccgtg ccgtcgggtgc actgttgggc 840  
 aaggcaaaca tcaaacctgc aaaataa 867

<210> 2352

<211> 288  
<212> PRT  
<213> Neisseria meningitidis

<400> 2352

Met	Lys	Ala	Lys	Ile	Leu	Thr	Ser	Val	Ala	Leu	Leu	Ala	Cys	Ser	Gly	
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Ser	Leu	Phe	Ala	Gln	Thr	Leu	Ala	Thr	Val	Asn	Gly	Gln	Lys	Ile	Asp	
			20					25					30			
Ser	Ser	Val	Ile	Asp	Ala	Gln	Val	Ala	Ala	Phe	Arg	Ala	Glu	Asn	Ser	
		35					40					45				
Arg	Ala	Glu	Asp	Thr	Pro	Gln	Leu	Arg	Gln	Ser	Leu	Leu	Glu	Asn	Glu	
		50				55					60					
Val	Val	Asn	Thr	Val	Val	Ala	Gln	Glu	Val	Lys	Arg	Leu	Lys	Leu	Asp	
65					70					75					80	
Arg	Ser	Ala	Glu	Phe	Lys	Asn	Ala	Leu	Ala	Lys	Leu	Arg	Ala	Glu	Ala	
				85					90					95		
Lys	Lys	Ser	Gly	Asp	Asp	Lys	Lys	Pro	Ser	Phe	Lys	Thr	Val	Trp	Gln	
			100					105					110			
Ala	Val	Lys	Tyr	Gly	Leu	Asn	Gly	Glu	Ala	Tyr	Ala	Leu	His	Ile	Ala	
		115					120					125				
Lys	Thr	Gln	Pro	Val	Ser	Glu	Gln	Glu	Val	Lys	Ala	Ala	Tyr	Asp	Asn	
		130					135				140					
Ile	Ser	Gly	Phe	Tyr	Lys	Gly	Thr	Gln	Glu	Val	Gln	Leu	Gly	Glu	Ile	
145					150					155					160	
Leu	Thr	Asp	Lys	Glu	Glu	Asn	Ala	Lys	Lys	Ala	Val	Ala	Asp	Leu	Lys	
				165					170					175		
Ala	Lys	Lys	Gly	Phe	Asp	Ala	Val	Leu	Lys	Gln	Tyr	Ser	Leu	Asn	Asp	
			180					185					190			
Arg	Thr	Lys	Gln	Thr	Gly	Ala	Pro	Val	Gly	Tyr	Val	Pro	Leu	Lys	Asp	
		195					200					205				
Leu	Glu	Gln	Gly	Val	Pro	Pro	Leu	Tyr	Gln	Ala	Ile	Lys	Asp	Leu	Lys	
	210					215					220					
Lys	Gly	Glu	Phe	Thr	Ala	Thr	Pro	Leu	Lys	Asn	Gly	Asp	Phe	Tyr	Gly	
225					230					235				240		
Val	Tyr	Tyr	Val	Asn	Asp	Ser	Arg	Glu	Val	Lys	Val	Pro	Ser	Phe	Asp	
				245					250					255		
Glu	Met	Lys	Gly	Gln	Ile	Ala	Gly	Asn	Leu	Gln	Ala	Glu	Arg	Ile	Asp	
		260						265					270			

Arg Ala Val Gly Ala Leu Leu Gly Lys Ala Asn Ile Lys Pro Ala Lys  
 275 280 285

<210> 2353  
 <211> 867  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2353  
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 gccgcattcc gtgcggaaaa cagccgtgcc gaagacacgc cgcaactgcg ccaatccctg 180  
 ctggaaaaacg aagtgggtcaa caccgtgggtc gcacaggaag tgaaacgcct gaaactcgac 240  
 cggtcggcag agtttaaaaa tgcgcttgcc aaattgcgtg ccgaagcgaa aaagtcgggc 300  
 gacgacaaga aaccgtcctt caaaaccgtt tggcaggcgg taaaatatgg cttgaacggc 360  
 gaggcatacg cgctgcatat cgccaaaacc caaccggttt ccgagcagga agtaaaagcc 420  
 gcatatgaca atatcagcgg tttttacaaa ggtacgcagg aagtccagtt gggcgaaatc 480  
 ctgaccgaca aggaagaaaa tgcaaaaaaa aacgaccgta ccaaacagac cgggtgcgccg 540  
 ttcgatgccg tcttgaaaaca atattccctc aacgaccgta ccaaacagac cgggtgcgccg 600  
 gtcggatatg tgccgctgaa agatttgga cagggtgttc cgccgcttta tcaggcaatt 660  
 aaggacttga aaaaaggcga atttacggca acgccgctga aaaacggcga tttctacggc 720  
 gtttattatg tcaacgacag ccgcgaggta aaagtgcctt cttttgatga aatgaaagga 780  
 cagattgcgg gcaaccttca ggcggaacgg attgaccgtg ccgtcgggtg actgttgggc 840  
 aaggcaaaca tcaaacctgc aaaataa 867

<210> 2354  
 <211> 288  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2354  
 Met Lys Ala Lys Ile Leu Thr Ser Val Ala Leu Leu Ala Cys Ser Gly  
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 Ser Leu Phe Ala Gln Thr Leu Ala Thr Val Asn Gly Gln Lys Ile Asp  
 20 25 30  
 Ser Ser Val Ile Asp Ala Gln Val Ala Ala Phe Arg Ala Glu Asn Ser  
 35 40 45  
 Arg Ala Glu Asp Thr Pro Gln Leu Arg Gln Ser Leu Leu Glu Asn Glu  
 50 55 60  
 Val Val Asn Thr Val Val Ala Gln Glu Val Lys Arg Leu Lys Leu Asp  
 65 70 75 80  
 Arg Ser Ala Glu Phe Lys Asn Ala Leu Ala Lys Leu Arg Ala Glu Ala  
 85 90 95  
 Lys Lys Ser Gly Asp Asp Lys Lys Pro Ser Phe Lys Thr Val Trp Gln  
 100 105 110



Ala Val Lys Tyr Gly Leu Asn Gly Glu Ala Tyr Ala Leu His Ile Ala	
115	120 125
Lys Thr Gln Pro Val Ser Glu Gln Glu Val Lys Ala Ala Tyr Asp Asn	
130	135 140
Ile Ser Gly Phe Tyr Lys Gly Thr Gln Glu Val Gln Leu Gly Glu Ile	
145	150 155 160
Leu Thr Asp Lys Glu Glu Asn Ala Lys Lys Ala Val Ala Asp Leu Lys	
	165 170 175
Ala Lys Lys Gly Phe Asp Ala Val Leu Lys Gln Tyr Ser Leu Asn Asp	
	180 185 190
Arg Thr Lys Gln Thr Gly Ala Pro Val Gly Tyr Val Pro Leu Lys Asp	
	195 200 205
Leu Glu Gln Gly Val Pro Pro Leu Tyr Gln Ala Ile Lys Asp Leu Lys	
	210 215 220
Lys Gly Glu Phe Thr Ala Thr Pro Leu Lys Asn Gly Asp Phe Tyr Gly	
225	230 235 240
Val Tyr Tyr Val Asn Asp Ser Arg Glu Val Lys Val Pro Ser Phe Asp	
	245 250 255
Glu Met Lys Gly Gln Ile Ala Gly Asn Leu Gln Ala Glu Arg Ile Asp	
	260 265 270
Arg Ala Val Gly Ala Leu Leu Gly Lys Ala Asn Ile Lys Pro Ala Lys	
	275 280 285

<210> 2355  
 <211> 2472  
 <212> DNA  
 <213> Neisseria meningitidis

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 attattgacg cgggcttggg cagttattac aaacaacgca ccgccgacgc gcaaaaaacc 180  
 gagctgccgc cccaagaaat cctcgaccaa atccgcctgt acgacctgcc cgaagtccag 240  
 tccgactttg tggaaaccca cggcggcacg cgcgaggcgg ttttaatgct cggcggcatc 300  
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 cgcctttccg acattctggt gaaaatcagg cagataggct acaccgccgc accctatgac 480  
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 ggcgacatcg aacccgatct cctgcaaata ctccattggg gcggcttttt aatggtgctg 660  
 cccgtcgtat tctattgcgc cgtcccgttt tatcaaggcg cgtgcgcga cttgaaaaac 720  
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gaaggcggtg gcgcgcaact gaccgtcaac ggcgaaacac aggtttgggc attgggcagg 1800
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gacagcgcgg cggaggcggt gcggcagttg gcaggcaaaa acctgacgct gcacattctc 1980
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<210> 2356

<211> 823

<212> PRT

<213> Neisseria meningitidis

<400> 2356

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His Leu Thr Val Arg Tyr Glu Asn Glu Asp Arg Glu Thr Cys Cys Ala  
20 25 30

Gly Cys Gln Ala Val Ala Gln Ser Ile Ile Asp Ala Gly Leu Gly Ser  
35 40 45

Tyr Tyr Lys Gln Arg Thr Ala Asp Ala Gln Lys Thr Glu Leu Pro Pro  
50 55 60

Gln Glu Ile Leu Asp Gln Ile Arg Leu Tyr Asp Leu Pro Glu Val Gln  
65 70 75 80

Ser Asp Phe Val Glu Thr His Gly Gly Thr Arg Glu Ala Val Leu Met  
85 90 95

Leu Gly Gly Ile Thr Cys Ala Ala Cys Val Trp Leu Ile Glu Gln Gln

100					105					110					
Leu	Leu	Arg	Thr	Asp	Gly	Ile	Val	Arg	Ile	Asp	Leu	Asn	Tyr	Ser	Thr
		115					120					125			
His	Arg	Cys	Arg	Val	Val	Trp	Asp	Asp	Gly	Lys	Ile	Arg	Leu	Ser	Asp
		130				135					140				
Ile	Leu	Leu	Lys	Ile	Arg	Gln	Ile	Gly	Tyr	Thr	Ala	Ala	Pro	Tyr	Asp
145					150					155					160
Ala	Gln	Lys	Ile	Glu	Ala	Ala	Asn	Gln	Lys	Glu	Arg	Lys	Gln	Tyr	Ile
				165					170					175	
Val	Arg	Leu	Ala	Val	Ala	Gly	Leu	Gly	Met	Met	Gln	Thr	Met	Met	Phe
			180					185					190		
Ala	Leu	Pro	Thr	Tyr	Leu	Tyr	Gly	Gly	Asp	Ile	Glu	Pro	Asp	Phe	Leu
		195					200					205			
Gln	Ile	Leu	His	Trp	Gly	Gly	Phe	Leu	Met	Val	Leu	Pro	Val	Val	Phe
		210				215					220				
Tyr	Cys	Ala	Val	Pro	Phe	Tyr	Gln	Gly	Ala	Leu	Arg	Asp	Leu	Lys	Asn
225					230					235					240
Arg	Arg	Val	Gly	Met	Asp	Thr	Pro	Ile	Thr	Val	Ala	Ile	Ile	Met	Thr
				245					250					255	
Phe	Ile	Ala	Gly	Val	Tyr	Ser	Leu	Ala	Thr	Asn	Ala	Gly	Gln	Gly	Met
			260					265					270		
Tyr	Phe	Glu	Ser	Ile	Ala	Met	Leu	Leu	Phe	Phe	Leu	Leu	Gly	Gly	Arg
		275					280					285			
Phe	Met	Glu	His	Ile	Ala	Arg	Arg	Lys	Ala	Gly	Asp	Ala	Ala	Glu	Arg
		290				295					300				
Leu	Val	Lys	Leu	Ile	Pro	Ala	Phe	Cys	His	His	Met	Pro	Asp	Tyr	Pro
305					310					315					320
Asp	Thr	Gln	Glu	Thr	Cys	Glu	Ala	Ala	Val	Val	Lys	Leu	Lys	Ala	Gly
				325					330					335	
Asp	Ile	Val	Leu	Val	Lys	Pro	Gly	Glu	Thr	Ile	Pro	Val	Asp	Gly	Thr
			340					345					350		
Val	Leu	Glu	Gly	Ser	Ser	Ala	Val	Asn	Glu	Ser	Met	Leu	Thr	Gly	Glu
		355					360					365			
Ser	Leu	Pro	Val	Ala	Lys	Met	Pro	Ser	Glu	Lys	Val	Thr	Ala	Gly	Thr
		370				375					380				
Leu	Asn	Thr	Gln	Ser	Pro	Leu	Ile	Ile	Arg	Thr	Asp	Arg	Thr	Gly	Gly
385					390					395					400
Gly	Thr	Arg	Leu	Ser	His	Ile	Val	Arg	Leu	Leu	Asp	Arg	Ala	Leu	Ala

405										410					415				
Gln	Lys	Pro	Arg	Thr	Ala	Glu	Leu	Ala	Glu	Gln	Tyr	Ala	Ser	Ser	Phe				
			420					425					430						
Ile	Phe	Gly	Glu	Leu	Leu	Leu	Ala	Val	Pro	Val	Phe	Ile	Gly	Trp	Thr				
		435					440						445						
Leu	Tyr	Ala	Asp	Ala	His	Thr	Ala	Leu	Trp	Ile	Thr	Val	Ala	Leu	Leu				
	450					455					460								
Val	Ile	Thr	Cys	Pro	Cys	Ala	Leu	Ser	Leu	Ala	Thr	Pro	Thr	Ala	Leu				
465					470				475						480				
Ala	Ala	Ser	Thr	Gly	Thr	Leu	Ala	Arg	Glu	Gly	Ile	Leu	Ile	Gly	Gly				
				485					490					495					
Lys	Gln	Ala	Ile	Glu	Thr	Leu	Ala	Gln	Thr	Thr	Asp	Ile	Ile	Phe	Asp				
		500						505					510						
Lys	Thr	Gly	Thr	Leu	Thr	Gln	Gly	Lys	Pro	Ala	Val	Arg	Arg	Ile	Ser				
		515					520					525							
Leu	Leu	Arg	Gly	Thr	Asp	Glu	Ala	Phe	Val	Leu	Ala	Val	Ala	Gln	Ala				
	530					535					540								
Leu	Glu	Gln	Gln	Ser	Glu	His	Pro	Leu	Ala	Arg	Ala	Ile	Leu	Asn	Cys				
545					550				555					560					
Arg	Ile	Ser	Asp	Gly	Ser	Val	Pro	Asp	Ile	Ala	Ile	Lys	Gln	Arg	Leu				
			565					570						575					
Asn	Arg	Ile	Gly	Glu	Gly	Val	Gly	Ala	Gln	Leu	Thr	Val	Asn	Gly	Glu				
		580					585						590						
Thr	Gln	Val	Trp	Ala	Leu	Gly	Arg	Ala	Ser	Tyr	Val	Ala	Glu	Ile	Ser				
		595				600						605							
Gly	Lys	Glu	Pro	Gln	Thr	Glu	Gly	Gly	Gly	Ser	Ala	Val	Tyr	Leu	Gly				
	610					615					620								
Ser	Gln	Ser	Gly	Phe	Gln	Ala	Val	Phe	Tyr	Leu	Gln	Asp	Pro	Leu	Lys				
625				630					635					640					
Asp	Ser	Ala	Ala	Glu	Ala	Val	Arg	Gln	Leu	Ala	Gly	Lys	Asn	Leu	Thr				
			645					650					655						
Leu	His	Ile	Leu	Ser	Gly	Asp	Arg	Glu	Thr	Ala	Val	Ala	Glu	Thr	Ala				
		660					665					670							
Arg	Ala	Leu	Gly	Val	Ala	His	Tyr	Arg	Ala	Gln	Ala	Met	Pro	Glu	Asp				
	675					680						685							
Lys	Leu	Glu	Tyr	Val	Lys	Ala	Leu	Gln	Lys	Glu	Gly	Lys	Lys	Val	Leu				
	690					695					700								
Met	Ile	Gly	Asp	Gly	Ile	Asn	Asp	Ala	Pro	Val	Leu	Ala	Gln	Ala	Asp				

705				710				715				720			
Val	Ser	Ala	Ala	Ala	Ala	Gly	Gly	Thr	Asp	Ile	Ala	Arg	Asp	Gly	Ala
				725				730				735			
Asp	Ile	Val	Leu	Leu	Asn	Glu	Asp	Leu	Arg	Thr	Val	Ala	His	Leu	Leu
				740				745				750			
Asp	Gln	Ala	Arg	Arg	Thr	Arg	His	Ile	Ile	Arg	Gln	Asn	Leu	Ile	Trp
				755				760				765			
Ala	Gly	Ala	Tyr	Asn	Ile	Ile	Ala	Val	Pro	Leu	Ala	Val	Leu	Gly	Tyr
				770				775				780			
Val	Gln	Pro	Trp	Ile	Ala	Ala	Leu	Gly	Met	Ser	Phe	Ser	Ser	Leu	Ala
				785				790				795			
Val	Leu	Gly	Asn	Ala	Leu	Arg	Leu	His	Lys	Arg	Gly	Lys	Met	Gln	Ser
				805				810				815			
Glu	Lys	Met	Pro	Ser	Glu	Gln									
				820											

35	40	45
Ile Ala Val Ala Val Ala Leu Val Arg Ile Met Pro Ser Gly Gly Ile 50 55 60		
Phe Gln Lys Cys Leu Leu Lys Leu Val Glu Phe Tyr Ile Ser Val Val 65 70 75 80		
Arg Gly Thr Pro Leu Leu Val Gln Leu Val Ile Val Phe Tyr Gly Leu 85 90 95		
Pro Ser Val Gly Ile Tyr Ile Asn Pro Ile Pro Ala Ala Ile Ile Gly 100 105 110		
Phe Ser Leu Asn Val Gly Ala Tyr Ala Ser Glu Thr Ile Arg Ala Ala 115 120 125		
Ile Leu Ser Val Pro Lys Gly Gln Trp Glu Ala Gly Phe Ser Ile Gly 130 135 140		
Met Thr Tyr Met Gln Thr Phe Arg Arg Ile Val Ala Pro Gln Ala Phe 145 150 155 160		
Arg Val Ala Val Pro Pro Leu Ser Asn Glu Phe Ile Gly Leu Phe Lys 165 170 175		
Asn Thr Ser Leu Ala Ala Val Val Thr Val Thr Glu Leu Phe Arg Val 180 185 190		
Ala Gln Glu Thr Ala Asn Arg Thr Tyr Asp Phe Leu Pro Val Tyr Ile 195 200 205		
Glu Ala Ala Leu Val Tyr Trp Cys Phe Cys Lys Val Leu Phe Leu Ile 210 215 220		
Gln Ala Arg Leu Glu Lys Arg Phe Asp Arg Tyr Val Ala Lys 225 230 235		

<210> 2359

<211> 717

<212> DNA

<213> *Neisseria meningitidis*

<400> 2359

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gcttcttttcg ttatcgggtat gatgattgcg gtagccgtgg ctttggtgcg gattatgccc 180
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cgcggtacgc cgctgttggg tcagcttgtg attgtgtttt acgggctgcc ttccgtcggc 300
atctatatcg acccgattcc tgccgccatc atcggtttt cgctcaatgt cggcgcatac 360
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cgcggttgccg tgccgccttt gagcaacgag tttatcgggt tgtttaaaaa cacctcgctc 540
gcggcagtcg tgacggtaac ggaattattc cgcgtcgcgc aggaaacggc aaaccgcact 600
tatgactttt tgcccgtcta tatcgaagcc gctttggttt actggtgttt ttgtaaagtg 660
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<210> 2360  
<211> 238  
<212> PRT  
<213> Neisseria meningitidis

<400> 2360  
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Ala Val Ser Leu Pro Leu Ala Ala Ala Ser Phe Val Ile Gly Met Met  
35 40 45  
Ile Ala Val Ala Val Ala Leu Val Arg Ile Met Pro Ala Gly Gly Ile  
50 55 60  
Val Arg Lys Ile Leu Leu Lys Leu Val Glu Phe Tyr Ile Ser Val Ile  
65 70 75 80  
Arg Gly Thr Pro Leu Leu Val Gln Leu Val Ile Val Phe Tyr Gly Leu  
85 90 95  
Pro Ser Val Gly Ile Tyr Ile Asp Pro Ile Pro Ala Ala Ile Ile Gly  
100 105 110  
Phe Ser Leu Asn Val Gly Ala Tyr Ala Ser Glu Thr Ile Arg Ala Ala  
115 120 125  
Ile Leu Ser Val Pro Lys Gly Gln Trp Glu Ala Gly Phe Ser Ile Gly  
130 135 140  
Met Thr Tyr Met Gln Thr Phe Arg Arg Ile Val Ala Pro Gln Ala Phe  
145 150 155 160  
Arg Val Ala Val Pro Pro Leu Ser Asn Glu Phe Ile Gly Leu Phe Lys  
165 170 175  
Asn Thr Ser Leu Ala Ala Val Val Thr Val Thr Glu Leu Phe Arg Val  
180 185 190  
Ala Gln Glu Thr Ala Asn Arg Thr Tyr Asp Phe Leu Pro Val Tyr Ile  
195 200 205  
Glu Ala Ala Leu Val Tyr Trp Cys Phe Cys Lys Val Leu Phe Leu Ile  
210 215 220  
Gln Ala Arg Leu Glu Lys Arg Phe Asp Arg Tyr Val Ala Lys  
225 230 235

<210> 2361  
<211> 717  
<212> DNA

<213> Neisseria meningitidis

<400> 2361

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gcttctttcg ttatcggtat gatgattgcg gtagccgtgg ctttgggtgcg gattatgccc 180
gccggcggca tcgtgcggaa aatcctgctg aaattgggtg aattttatat ttccgtcatt 240
cgcggtacgc cgctgttggg tcagcttgtg attgtgtttt acgggctgcc ttccgtcggc 300
atctatatcg acccgattcc tgccgccatc atcggtttt cgctcaatgt cggcgcatat 360
gcttccgaaa ccatacgcgc ggcaattttg tccgtaccga aaggccaatg ggaagcaggt 420
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cgcggttgccg tgccgccttt gagcaacgag tttatcggtt tgtttaaaaa cacctcgctc 540
gcggcagtcg tgacggtaac ggaattattc cgcgtcgcgc aggaacgcgc aaaccgcact 600
tatgactttt tgcccgtcta tatcgaagcc gctttgggtt actggtgttt ttgtaaagtg 660
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<210> 2362

<211> 238

<212> PRT

<213> Neisseria meningitidis

<400> 2362

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    20             25             30

Ala Val Ser Leu Pro Leu Ala Ala Ala Ser Phe Val Ile Gly Met Met
    35             40             45

Ile Ala Val Ala Val Ala Leu Val Arg Ile Met Pro Ala Gly Gly Ile
    50             55             60

Val Arg Lys Ile Leu Leu Lys Leu Val Glu Phe Tyr Ile Ser Val Ile
    65             70             75             80

Arg Gly Thr Pro Leu Leu Val Gln Leu Val Ile Val Phe Tyr Gly Leu
    85             90             95

Pro Ser Val Gly Ile Tyr Ile Asp Pro Ile Pro Ala Ala Ile Ile Gly
   100             105             110

Phe Ser Leu Asn Val Gly Ala Tyr Ala Ser Glu Thr Ile Arg Ala Ala
   115             120             125

Ile Leu Ser Val Pro Lys Gly Gln Trp Glu Ala Gly Phe Ser Ile Gly
   130             135             140

Met Thr Tyr Met Gln Thr Phe Arg Arg Ile Val Ala Pro Gln Ala Phe
  145             150             155             160

Arg Val Ala Val Pro Pro Leu Ser Asn Glu Phe Ile Gly Leu Phe Lys
   165             170             175
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Asn Thr Ser Leu Ala Ala Val Val Thr Val Thr Glu Leu Phe Arg Val  
 180 185 190

Ala Gln Glu Thr Ala Asn Arg Thr Tyr Asp Phe Leu Pro Val Tyr Ile  
 195 200 205

Glu Ala Ala Leu Val Tyr Trp Cys Phe Cys Lys Val Leu Phe Leu Ile  
 210 215 220

Gln Ala Arg Leu Glu Lys Arg Phe Asp Arg Tyr Val Ala Lys  
 225 230 235

<210> 2363  
 <211> 1128  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 2363  
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 ctgcccggc tactccacct ccaacacggc gaatggatag ggatgaccgt cttcgtcgtc 180  
 ctcggcacgc tccagttcca aggcgcgatt tactccaacg cgggtggaacg tatgctcggg 240  
 acggtcatcg ggctggggcg gggtttgggc gttttatggc tgaaccagca ttatttccac 300  
 ggcaacctcc tcttctacct gaccatcggc acggcaagcg cactggccgg ctgggcggcg 360  
 gtcggcaaaa acggctacgt ccctatgctg gcggggctga cgatgtgcat gctcatcggc 420  
 gacaacggca gcgaatggct cgacagcggc ctgatgcgcg cgatgaacgt cctcatcggc 480  
 gccgccatcg ccattggcgc cgccaaactg ctgccgctga aatccacact gatgtggcgt 540  
 ttcattgctg ccgacaacct ggccgactgc agcaaaatga ttgccgaaat cagcaacggc 600  
 aggcgtatga cgcgcaacg tttggagcag aatatgggtca aaatgcgcca aatcaacgca 660  
 cgcatggtca aaagccgcag ccacctcgcc gccacatcgg gcgaaagccg catcagcccc 720  
 tccatgatgg aagccatgca gcacgcccac cgcaaaatcg tcaacaccac cgagctgctc 780  
 ctgaccaccg ccgccaagct gcaatctccc aaactcaacg gcagcgaaat ccggctgctc 840  
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 agacacgccc gccgcatccg catcgacacc gccatcaacc ccgaactgga agccctcgcc 960  
 gaacacctcc actaccaatg gcagggttc ctctggctca gcaccaatat gcgtcaggaa 1020  
 atttcgccc tcgtcatcct gctgcaacgc acccgccgca aatggctgga tgcccacgaa 1080  
 cgccaacacc tgcgcaaaag cctgcttgaa acacgggaac acggctga 1128

<210> 2364  
 <211> 375  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 2364  
 Met Asn Ser Ser Gln Arg Lys Arg Leu Ser Gly Arg Trp Leu Asn Ser  
 1 5 10 15  
 Tyr Glu Arg Tyr Arg His Arg Arg Leu Ile His Ala Val Arg Leu Gly  
 20 25 30  
 Gly Thr Val Leu Phe Ala Thr Ala Leu Ala Arg Leu Leu His Leu Gln  
 35 40 45  
 His Gly Glu Trp Ile Gly Met Thr Val Phe Val Val Leu Gly Met Leu  
 50 55 60

Gln	Phe	Gln	Gly	Ala	Ile	Tyr	Ser	Asn	Ala	Val	Glu	Arg	Met	Leu	Gly	65	70	75	80
Thr	Val	Ile	Gly	Leu	Gly	Ala	Gly	Leu	Gly	Val	Leu	Trp	Leu	Asn	Gln	85	90	95	
His	Tyr	Phe	His	Gly	Asn	Leu	Leu	Phe	Tyr	Leu	Thr	Ile	Gly	Thr	Ala	100	105	110	
Ser	Ala	Leu	Ala	Gly	Trp	Ala	Ala	Val	Gly	Lys	Asn	Gly	Tyr	Val	Pro	115	120	125	
Met	Leu	Ala	Gly	Leu	Thr	Met	Cys	Met	Leu	Ile	Gly	Asp	Asn	Gly	Ser	130	135	140	
Glu	Trp	Leu	Asp	Ser	Gly	Leu	Met	Arg	Ala	Met	Asn	Val	Leu	Ile	Gly	145	150	155	160
Ala	Ala	Ile	Ala	Ile	Ala	Ala	Ala	Lys	Leu	Leu	Pro	Leu	Lys	Ser	Thr	165	170	175	
Leu	Met	Trp	Arg	Phe	Met	Leu	Ala	Asp	Asn	Leu	Ala	Asp	Cys	Ser	Lys	180	185	190	
Met	Ile	Ala	Glu	Ile	Ser	Asn	Gly	Arg	Arg	Met	Thr	Arg	Glu	Arg	Leu	195	200	205	
Glu	Gln	Asn	Met	Val	Lys	Met	Arg	Gln	Ile	Asn	Ala	Arg	Met	Val	Lys	210	215	220	
Ser	Arg	Ser	His	Leu	Ala	Ala	Thr	Ser	Gly	Glu	Ser	Arg	Ile	Ser	Pro	225	230	235	240
Ser	Met	Met	Glu	Ala	Met	Gln	His	Ala	His	Arg	Lys	Ile	Val	Asn	Thr	245	250	255	
Thr	Glu	Leu	Leu	Leu	Thr	Thr	Ala	Ala	Lys	Leu	Gln	Ser	Pro	Lys	Leu	260	265	270	
Asn	Gly	Ser	Glu	Ile	Arg	Leu	Leu	Asp	Arg	His	Phe	Thr	Leu	Leu	Gln	275	280	285	
Thr	Asp	Leu	Gln	Gln	Thr	Ala	Ala	Leu	Ile	Asn	Gly	Arg	His	Ala	Arg	290	295	300	
Arg	Ile	Arg	Ile	Asp	Thr	Ala	Ile	Asn	Pro	Glu	Leu	Glu	Ala	Leu	Ala	305	310	315	320
Glu	His	Leu	His	Tyr	Gln	Trp	Gln	Gly	Phe	Leu	Trp	Leu	Ser	Thr	Asn	325	330	335	
Met	Arg	Gln	Glu	Ile	Ser	Ala	Leu	Val	Ile	Leu	Leu	Gln	Arg	Thr	Arg	340	345	350	
Arg	Lys	Trp	Leu	Asp	Ala	His	Glu	Arg	Gln	His	Leu	Arg	Gln	Ser	Leu	355	360	365	

Leu Glu Thr Arg Glu His Gly  
370 375

<210> 2365  
<211> 1128  
<212> DNA  
<213> *Neisseria meningitidis*

<400> 2365  
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tccgcccggc tgctccacct ccaacacggc gaggtagatg ggatgaccgt cttcgtcgtc 180  
ctcggcatgc tccagtttca aggggcgatt tactccaagg cgggtggaac tatgctcggc 240  
acggtcatcg ggctggggcg gggtttgggc gttttatggc tgaaccagca ttatttccac 300  
ggcaacctcc tcttctacct caccgtcggc acggcaagcg cactggccgg ctgggcggcg 360  
gtcggcaaaa acggctacgt ccctatgctg gcagggctga cgatgtgtat gctcatcggc 420  
gacaacggca gcgaatggct cgacagcggg ctcattgcgg ccatgaacgt cctcatcggc 480  
gcggccatcg ccatcgccgc cgccaaactg ctgccgctga aatccacact gatgtggcgt 540  
ttcatgcttg ccgacaacct ggccgactgc agcaaaatga ttgccgaaat cagcaacggc 600  
aggcgcatga ccgcggaacg cctcgaggag aacatggcga aaatgcgcca aatcaacgca 660  
cgcatggtca aaagccgcag ccatctcgcc gccacatcgg gcgaaagccg catcagcccc 720  
gccatgatgg aagccatgca gcacgcccac cgtaaaatcg tcaacaccac cgagctgctc 780  
ctgaccaccg ccgccaagct gcaatctccc aaactcaacg gcagcgaaat ccggctgctt 840  
gaccgccact tcacactgct ccaaaccgac ctgcaacaaa ccgtcgcctt tatcaacggc 900  
agacacgccc gccgcacccg catcgacacc gccatcaacc ccgaactgga agccctcgcc 960  
gaacacctcc actaccaatg gcagggcttc ctctggctca gcaccaatat gcgtcaggaa 1020  
atttccgccc tcgtcatcct gctgcaacgc acccgccgca aatggctgga tgcccacgaa 1080  
cgccaacacc tgcgcaaaag cctgcttgaa acacgggaac acggctga 1128

<210> 2366  
<211> 375  
<212> PRT  
<213> *Neisseria meningitidis*

<400> 2366  
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Gly Ala Val Leu Phe Ala Thr Ala Ser Ala Arg Leu Leu His Leu Gln  
35 40 45  
His Gly Glu Trp Ile Gly Met Thr Val Phe Val Val Leu Gly Met Leu  
50 55 60  
Gln Phe Gln Gly Ala Ile Tyr Ser Lys Ala Val Glu Arg Met Leu Gly  
65 70 75 80  
Thr Val Ile Gly Leu Gly Ala Gly Leu Gly Val Leu Trp Leu Asn Gln  
85 90 95  
His Tyr Phe His Gly Asn Leu Leu Phe Tyr Leu Thr Val Gly Thr Ala

100	105	110
Ser Ala Leu Ala Gly Trp Ala Ala Val Gly Lys Asn Gly Tyr Val Pro		
115	120	125
Met Leu Ala Gly Leu Thr Met Cys Met Leu Ile Gly Asp Asn Gly Ser		
130	135	140
Glu Trp Leu Asp Ser Gly Leu Met Arg Ala Met Asn Val Leu Ile Gly		
145	150	155
Ala Ala Ile Ala Ile Ala Ala Ala Lys Leu Leu Pro Leu Lys Ser Thr		
165	170	175
Leu Met Trp Arg Phe Met Leu Ala Asp Asn Leu Ala Asp Cys Ser Lys		
180	185	190
Met Ile Ala Glu Ile Ser Asn Gly Arg Arg Met Thr Arg Glu Arg Leu		
195	200	205
Glu Glu Asn Met Ala Lys Met Arg Gln Ile Asn Ala Arg Met Val Lys		
210	215	220
Ser Arg Ser His Leu Ala Ala Thr Ser Gly Glu Ser Arg Ile Ser Pro		
225	230	235
Ala Met Met Glu Ala Met Gln His Ala His Arg Lys Ile Val Asn Thr		
245	250	255
Thr Glu Leu Leu Leu Thr Thr Ala Ala Lys Leu Gln Ser Pro Lys Leu		
260	265	270
Asn Gly Ser Glu Ile Arg Leu Leu Asp Arg His Phe Thr Leu Leu Gln		
275	280	285
Thr Asp Leu Gln Gln Thr Val Ala Leu Ile Asn Gly Arg His Ala Arg		
290	295	300
Arg Ile Arg Ile Asp Thr Ala Ile Asn Pro Glu Leu Glu Ala Leu Ala		
305	310	315
Glu His Leu His Tyr Gln Trp Gln Gly Phe Leu Trp Leu Ser Thr Asn		
325	330	335
Met Arg Gln Glu Ile Ser Ala Leu Val Ile Leu Leu Gln Arg Thr Arg		
340	345	350
Arg Lys Trp Leu Asp Ala His Glu Arg Gln His Leu Arg Gln Ser Leu		
355	360	365
Leu Glu Thr Arg Glu His Gly		
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<210> 2367

<211> 1128

<212> DNA  
 <213> Neisseria meningitidis

<400> 2367  
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 tccgcccggc tgctccacct ccaacacggc gaggggatag ggatgaccgt cttcgtcgtc 180  
 ctccgcatgc tccagtttca agggggcgatt tactccaagg cgggtggaacg tatgctcggc 240  
 acggtcatcg ggctgggccc ggggtttggc gttttatggc tgaaccagca ttatttccac 300  
 ggcaacctcc tcttctacct caccgtcggc acggcaagcg cactggccgg ctggggcgcg 360  
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 gacaacggca gcgaatggtt cgacagcggc ctgatgcgcg cgatgaacgt cctcatcggc 480  
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 ttcatgcttg ccgacaacct gaccgactgc agcaaaatga ttgccgaaat cagcaacggc 600  
 aggcgcatga cccgcgaacg cctcgaagag aacatggcga aaatgcgcca aatcaacgca 660  
 cgcatggtca aaagccgcag ccacctcgcc gccacatcgg gcgaaagccg catcagcccc 720  
 gccatgatgg aagccatgca gcacgcccac cgtaaaattg tcaacaccac cgagctgctc 780  
 ctgaccaccg ccgccaagct gcaatctccc aaactcaacg gcagcgaaat ccggctgctt 840  
 gaccgccact tcacactgct ccaaaccgac ctgcaacaaa ccgtcgccct tatcaacggc 900  
 agacacgccc gccgcatccg catcgacacc gccatcaacc ccgaactgga agccctcgcc 960  
 gaacacctcc actaccaatg gcagggttc ctctggctca gcaccaatat gcgtcaggaa 1020  
 atttcgccc tcgtcatcct gctgcaacgc acccgccgca aatggctgga tgcccacgaa 1080  
 cgccaacacc tgcgccaaag cctgcttgaa acacgggaac acagttga 1128

<210> 2368  
 <211> 375  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2368  
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 Tyr Glu Arg Tyr Arg Tyr Arg Arg Leu Ile His Ala Val Arg Leu Gly  
                     20                    25                    30  
 Gly Ala Val Leu Phe Ala Thr Ala Ser Ala Arg Leu Leu His Leu Gln  
                     35                    40                    45  
 His Gly Glu Trp Ile Gly Met Thr Val Phe Val Val Leu Gly Met Leu  
                     50                    55                    60  
 Gln Phe Gln Gly Ala Ile Tyr Ser Lys Ala Val Glu Arg Met Leu Gly  
                     65                    70                    75                    80  
 Thr Val Ile Gly Leu Gly Ala Gly Leu Gly Val Leu Trp Leu Asn Gln  
                     85                    90                    95  
 His Tyr Phe His Gly Asn Leu Leu Phe Tyr Leu Thr Val Gly Thr Ala  
                     100                    105                    110  
 Ser Ala Leu Ala Gly Trp Ala Ala Val Gly Lys Asn Gly Tyr Val Pro  
                     115                    120                    125  
 Met Leu Ala Gly Leu Thr Met Cys Met Leu Ile Gly Asp Asn Gly Ser  
                     130                    135                    140

Glu Trp Phe Asp Ser Gly Leu Met Arg Ala Met Asn Val Leu Ile Gly  
 145 150 155 160  
 Ala Ala Ile Ala Ile Ala Ala Ala Lys Leu Leu Pro Leu Lys Ser Thr  
 165 170 175  
 Leu Met Trp Arg Phe Met Leu Ala Asp Asn Leu Thr Asp Cys Ser Lys  
 180 185 190  
 Met Ile Ala Glu Ile Ser Asn Gly Arg Arg Met Thr Arg Glu Arg Leu  
 195 200 205  
 Glu Glu Asn Met Ala Lys Met Arg Gln Ile Asn Ala Arg Met Val Lys  
 210 215 220  
 Ser Arg Ser His Leu Ala Ala Thr Ser Gly Glu Ser Arg Ile Ser Pro  
 225 230 235 240  
 Ala Met Met Glu Ala Met Gln His Ala His Arg Lys Ile Val Asn Thr  
 245 250 255  
 Thr Glu Leu Leu Leu Thr Thr Ala Ala Lys Leu Gln Ser Pro Lys Leu  
 260 265 270  
 Asn Gly Ser Glu Ile Arg Leu Leu Asp Arg His Phe Thr Leu Leu Gln  
 275 280 285  
 Thr Asp Leu Gln Gln Thr Val Ala Leu Ile Asn Gly Arg His Ala Arg  
 290 295 300  
 Arg Ile Arg Ile Asp Thr Ala Ile Asn Pro Glu Leu Glu Ala Leu Ala  
 305 310 315 320  
 Glu His Leu His Tyr Gln Trp Gln Gly Phe Leu Trp Leu Ser Thr Asn  
 325 330 335  
 Met Arg Gln Glu Ile Ser Ala Leu Val Ile Leu Leu Gln Arg Thr Arg  
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 Leu Glu Thr Arg Glu His Ser  
 370 375

<210> 2369

<211> 1680

<212> DNA

<213> Neisseria meningitidis

<400> 2369

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 gtcttgagtg aagatgaaac accgtgtact cgggtaaatt acattagttt agatgataag 180  
 acggtgcgca aattttcttt tcttccttct gtgctcatga aagaaacagc ttttaaaact 240

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<210> 2370

<211> 559

<212> PRT

<213> Neisseria meningitidis

<400> 2370

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			20					25					30		
Gln	Pro	Leu	Glu	Lys	Asn	Asn	Tyr	Val	Leu	Ser	Glu	Asp	Glu	Thr	Pro
		35					40					45			
Cys	Thr	Arg	Val	Asn	Tyr	Ile	Ser	Leu	Asp	Asp	Lys	Thr	Val	Arg	Lys
	50					55					60				
Phe	Ser	Phe	Leu	Pro	Ser	Val	Leu	Met	Lys	Glu	Thr	Ala	Phe	Lys	Thr
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Gly	Met	Cys	Leu	Gly	Ser	Asn	Asn	Leu	Ser	Arg	Leu	Gln	Lys	Ala	Ala
				85					90					95	
Gln	Gln	Ile	Leu	Ile	Val	Arg	Gly	Tyr	Leu	Thr	Ser	Gln	Ala	Ile	Ile
			100					105					110		
Gln	Pro	Gln	Asn	Met	Asp	Ser	Gly	Ile	Leu	Lys	Leu	Arg	Val	Ser	Ala
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Gly	Glu	Ile	Gly	Asp	Ile	Arg	Tyr	Glu	Glu	Lys	Arg	Asp	Gly	Lys	Ser

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 Ala Glu Gly Ser Ile Ser Ala Phe Asn Asn Lys Phe Pro Leu Tyr Arg  
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 Asn Lys Ile Leu Asn Leu Arg Asp Val Glu Gln Gly Leu Glu Asn Leu  
                     165                      170                      175  
 Arg Arg Leu Pro Ser Val Lys Thr Asp Ile Gln Ile Ile Pro Ser Glu  
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 Glu Glu Gly Lys Ser Asp Leu Gln Ile Lys Trp Gln Gln Asn Lys Pro  
                     195                      200                      205  
 Ile Arg Phe Ser Ile Gly Ile Asp Asp Ala Gly Gly Lys Thr Thr Gly  
                     210                      215                      220  
 Lys Tyr Gln Gly Asn Val Ala Leu Ser Phe Asp Asn Pro Leu Gly Leu  
 225                      230                      235                      240  
 Ser Asp Leu Phe Tyr Val Ser Tyr Gly Arg Gly Leu Ala His Lys Thr  
                     245                      250                      255  
 Asp Leu Thr Asp Ala Thr Gly Thr Glu Thr Glu Ser Gly Ser Arg Ser  
                     260                      265                      270  
 Tyr Ser Val His Tyr Ser Val Pro Val Lys Lys Trp Leu Phe Ser Phe  
                     275                      280                      285  
 Asn His Asn Gly His Arg Tyr His Glu Ala Thr Glu Gly Tyr Ser Val  
                     290                      295                      300  
 Asn Tyr Asp Tyr Asn Gly Lys Gln Tyr Gln Ser Ser Leu Ala Ala Glu  
 305                      310                      315                      320  
 Arg Met Leu Trp Arg Asn Arg Leu His Lys Thr Ser Val Gly Met Lys  
                     325                      330                      335  
 Leu Trp Thr Arg Gln Thr Tyr Lys Tyr Ile Asp Asp Ala Glu Ile Glu  
                     340                      345                      350  
 Val Gln Arg Arg Arg Ser Ala Gly Trp Glu Ala Glu Leu Arg His Arg  
                     355                      360                      365  
 Ala Tyr Leu Asn Arg Trp Gln Leu Asp Gly Lys Leu Ser Tyr Lys Arg  
                     370                      375                      380  
 Gly Thr Gly Met Arg Gln Ser Met Pro Ala Pro Glu Glu Asn Gly Gly  
 385                      390                      395                      400  
 Asp Ile Leu Pro Gly Thr Ser Arg Met Lys Ile Ile Thr Ala Ser Leu  
                     405                      410                      415  
 Asp Ala Ala Ala Pro Phe Ile Leu Gly Lys Gln Gln Phe Phe Tyr Ala  
                     420                      425                      430  
 Thr Ala Ile Gln Ala Gln Trp Asn Lys Thr Pro Leu Val Ala Gln Asp



435	440	445
Lys Leu Ser Ile Gly Ser Arg Tyr Thr Val Arg Gly Phe Asp Gly Glu		
450	455	460
Gln Ser Leu Phe Gly Glu Arg Gly Phe Tyr Trp Gln Asn Thr Leu Thr		
465	470	475
Trp Tyr Phe His Pro Asn His Gln Phe Tyr Leu Gly Ala Asp Tyr Gly		
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Arg Val Ser Gly Glu Ser Ala Gln Tyr Val Ser Gly Lys Gln Leu Met		
	500	510
Gly Ala Val Val Gly Phe Arg Gly Gly His Lys Val Gly Gly Met Phe		
	515	520
Ala Tyr Asp Leu Phe Ala Gly Lys Pro Leu His Lys Pro Lys Gly Phe		
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Gln Thr Thr Asn Thr Val Tyr Gly Phe Asn Leu Asn Tyr Ser Phe		
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<210> 2371

<211> 1464

<212> DNA

<213> *Neisseria meningitidis*

<400> 2371

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caaccacaga atatggattc gggaattctg aaattacggg tatcagcagg cgaaataggn 180
gatatccgct atgaagaaaa acgggatgng aagtctgccg agggcagtat tagtgcattc 240
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gaagaaggca aaagcgattt acagatcaaa tggcagcaga ataaacccat acggttcagt 420
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<210> 2372

<211> 487

<212> PRT

<213> Neisseria meningitidis

<400> 2372

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Tyr Leu Thr Ser Gln Ala Ile Ile Gln Pro Gln Asn Met Asp Ser Gly  
35 40 45

Ile Leu Lys Leu Arg Val Ser Ala Gly Glu Ile Gly Asp Ile Arg Tyr  
50 55 60

Glu Glu Lys Arg Asp Xaa Lys Ser Ala Glu Gly Ser Ile Ser Ala Phe  
65 70 75 80

Asn Asn Lys Xaa Pro Leu Tyr Arg Asn Lys Ile Leu Asn Leu Arg Asp  
85 90 95

Val Glu Gln Gly Leu Glu Asn Leu Arg Arg Leu Pro Ser Val Lys Thr  
100 105 110

Asp Ile Gln Ile Ile Pro Ser Glu Glu Glu Gly Lys Ser Asp Leu Gln  
115 120 125

Ile Lys Trp Gln Gln Asn Lys Pro Ile Arg Phe Ser Ile Gly Ile Asp  
130 135 140

Asp Ala Gly Gly Lys Thr Thr Gly Lys Tyr Gln Gly Asn Val Ala Leu  
145 150 155 160

Ser Xaa Asp Asn Pro Leu Gly Leu Ser Asp Xaa Phe Tyr Val Ser Tyr  
165 170 175

Gly Arg Gly Leu Val His Lys Thr Asp Leu Thr Xaa Ala Thr Gly Thr  
180 185 190

Glu Thr Glu Ser Gly Ser Arg Ser Tyr Ser Val His Tyr Ser Val Xaa  
195 200 205

Val Lys Lys Trp Leu Phe Ser Phe Asn His Asn Gly His Arg Tyr His  
210 215 220

Glu Ala Thr Glu Gly Tyr Ser Val Asn Tyr Asp Tyr Asn Gly Lys Gln  
225 230 235 240

Tyr Gln Ser Ser Leu Ala Ala Glu Arg Met Leu Trp Xaa Xaa Xaa Phe  
245 250 255

Xaa Xaa Thr Ser Val Xaa Met Lys Leu Trp Thr Arg Gln Thr Tyr Lys  
260 265 270

Tyr Ile Asp Asp Ala Glu Ile Glu Val Gln Arg Arg Arg Ser Ala Gly  
 275 280 285  
 Trp Glu Ala Glu Leu Arg His Arg Ala Tyr Leu Xaa Arg Trp Gln Leu  
 290 295 300  
 Asp Gly Lys Leu Ser Tyr Lys Arg Gly Thr Gly Met Arg Gln Ser Met  
 305 310 315 320  
 Pro Ala Pro Glu Glu Asn Gly Gly Gly Thr Ile Pro Xaa Xaa Ser Arg  
 325 330 335  
 Met Lys Ile Ile Thr Ala Gly Leu Asp Ala Ala Ala Pro Xaa Met Leu  
 340 345 350  
 Gly Lys Gln Gln Phe Phe Tyr Ala Thr Ala Ile Gln Ala Gln Trp Asn  
 355 360 365  
 Lys Thr Pro Leu Val Ala Gln Asp Lys Leu Ser Ile Gly Ser Arg Tyr  
 370 375 380  
 Thr Val Arg Gly Phe Asp Gly Glu Gln Ser Leu Phe Gly Glu Arg Gly  
 385 390 395 400  
 Phe Tyr Trp Gln Asn Thr Leu Thr Trp Tyr Phe His Pro Asn His Gln  
 405 410 415  
 Phe Tyr Leu Gly Ala Asp Tyr Gly Arg Val Ser Gly Glu Ser Ala Gln  
 420 425 430  
 Tyr Val Ser Gly Lys Gln Leu Met Gly Ala Val Val Gly Phe Arg Gly  
 435 440 445  
 Gly His Lys Val Gly Gly Met Phe Ala Tyr Asp Leu Phe Ala Gly Lys  
 450 455 460  
 Pro Leu His Lys Pro Lys Gly Phe Gln Thr Thr Asn Thr Val Tyr Gly  
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 Phe Asn Leu Asn Tyr Ser Phe  
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<210> 2373

<211> 762

<212> DNA

<213> Neisseria gonorrhoeae

<400> 2373

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 gatgccttga aatcgaaccc taaaaacgaa cttgcctggc tgggtccgtgc cgaaatctat 240  
 caataacctga aagttaacga caaggcgcag gaaagtttcc ggcaagccct ctccatcaaa 300  
 cccgacagtgc ccgaaatcaa caacaactac ggctgggttc tgtgcggcag gctcaaccgc 360  
 cctgccgaat ctatggcata ttctgacaaa gccctggccg accccaccta cccgaccctt 420  
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gaagcctatt tgaaacgttc cctcgccgcc cagccgcagt tcccacccgc atttaaagaa 540  
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 taccaaagca gggtagaagt ccttcaggcc gatgatttgc tgctaggctg gaaaattgcc 660  
 aaagccctcg gcaacgtgca ggccgcatac gaatatgaag cacaattgca ggcaaatttc 720  
 ccctactcgg aagaattgca aaccgtcctc accggtcaat aa 762

<210> 2374

<211> 253

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2374

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Leu	Gly	Ala	Cys	Ser	Thr	Ser	Tyr	Arg	Pro	Ser	Arg	Ala	Glu	Lys	Ala	20	25	30	
Asn	Gln	Val	Ser	Asn	Ile	Lys	Thr	Gln	Leu	Ala	Met	Glu	Tyr	Met	Arg	35	40	45	
Gly	Gln	Asp	Tyr	Arg	Gln	Ala	Thr	Ala	Ser	Ile	Glu	Asp	Ala	Leu	Lys	50	55	60	
Ser	Asn	Pro	Lys	Asn	Glu	Leu	Ala	Trp	Leu	Val	Arg	Ala	Glu	Ile	Tyr	65	70	75	80
Gln	Tyr	Leu	Lys	Val	Asn	Asp	Lys	Ala	Gln	Glu	Ser	Phe	Arg	Gln	Ala	85	90	95	
Leu	Ser	Ile	Lys	Pro	Asp	Ser	Ala	Glu	Ile	Asn	Asn	Asn	Tyr	Gly	Trp	100	105	110	
Phe	Leu	Cys	Gly	Arg	Leu	Asn	Arg	Pro	Ala	Glu	Ser	Met	Ala	Tyr	Phe	115	120	125	
Asp	Lys	Ala	Leu	Ala	Asp	Pro	Thr	Tyr	Pro	Thr	Pro	Tyr	Ile	Ala	Asn	130	135	140	
Leu	Asn	Lys	Gly	Ile	Cys	Ser	Ala	Lys	Gln	Gly	Gln	Phe	Gly	Leu	Ala	145	150	155	160
Glu	Ala	Tyr	Leu	Lys	Arg	Ser	Leu	Ala	Ala	Gln	Pro	Gln	Phe	Pro	Pro	165	170	175	
Ala	Phe	Lys	Glu	Leu	Ala	Arg	Thr	Lys	Met	Leu	Ala	Gly	Gln	Leu	Gly	180	185	190	
Asp	Ala	Asp	Tyr	Tyr	Phe	Lys	Lys	Tyr	Gln	Ser	Arg	Val	Glu	Val	Leu	195	200	205	
Gln	Ala	Asp	Asp	Leu	Leu	Leu	Gly	Trp	Lys	Ile	Ala	Lys	Ala	Leu	Gly	210	215	220	
Asn	Val	Gln	Ala	Ala	Tyr	Glu	Tyr	Glu	Ala	Gln	Leu	Gln	Ala	Asn	Phe	225	230	235	240

Pro Tyr Ser Glu Glu Leu Gln Thr Val Leu Thr Gly Gln  
 245 250

<210> 2375  
 <211> 762  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 2375  
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 cagttggcaa tggaatatat gcgcggtcag gactaccgtc aggcgacggc aagtattgaa 180  
 gacgccctga aatcggaccc taaaaacgag cttgcctggc tggtcgctgc cgaaatctat 240  
 caatacctga aagttaacga caaggcgcag gaaagtttcc ggcaagccct ctccatcaaa 300  
 cccgacagtg ccgaaatcaa caacaactac ggttggttcc tatgcggcag gctcaaccgc 360  
 cctgccgaat ctatggcata tttcgacaaa gctctggcgg accccaccta cccgaccctc 420  
 tatattgccca acctgaataa aggcataatgc agcgcaaaac aggggcaatt cggattggcg 480  
 gaagcctatt tgaaacgttc cctcgccgcc cagccgcagt tcccacccgc atttaaagaa 540  
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 taccaaagca gggtagaagt ccttcaggcc gatgatttgc tgctaggctg gaaaattgcc 660  
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<210> 2376  
 <211> 253  
 <212> PRT  
 <213> *Neisseria meningitidis*

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 Asn Gln Val Ser Asn Ile Lys Thr Gln Leu Ala Met Glu Tyr Met Arg  
 35 40 45  
 Gly Gln Asp Tyr Arg Gln Ala Thr Ala Ser Ile Glu Asp Ala Leu Lys  
 50 55 60  
 Ser Asp Pro Lys Asn Glu Leu Ala Trp Leu Val Arg Ala Glu Ile Tyr  
 65 70 75 80  
 Gln Tyr Leu Lys Val Asn Asp Lys Ala Gln Glu Ser Phe Arg Gln Ala  
 85 90 95  
 Leu Ser Ile Lys Pro Asp Ser Ala Glu Ile Asn Asn Asn Tyr Gly Trp  
 100 105 110  
 Phe Leu Cys Gly Arg Leu Asn Arg Pro Ala Glu Ser Met Ala Tyr Phe  
 115 120 125  
 Asp Lys Ala Leu Ala Asp Pro Thr Tyr Pro Thr Pro Tyr Ile Ala Asn

130	135	140
Leu Asn Lys Gly Ile Cys Ser Ala Lys Gln Gly Gln Phe Gly Leu Ala		
145	150	155 160
Glu Ala Tyr Leu Lys Arg Ser Leu Ala Ala Gln Pro Gln Phe Pro Pro		
	165	170 175
Ala Phe Lys Glu Leu Ala Arg Thr Lys Met Leu Ala Gly Gln Leu Gly		
	180	185 190
Asp Ala Asp Tyr Tyr Phe Lys Lys Tyr Gln Ser Arg Val Glu Val Leu		
	195	200 205
Gln Ala Asp Asp Leu Leu Leu Gly Trp Lys Ile Ala Lys Ala Leu Gly		
	210	215 220
Asn Ala Gln Ala Ala Tyr Glu Tyr Glu Ala Gln Leu Gln Ala Asn Phe		
	225	230 235 240
Pro Tyr Ser Glu Glu Leu Gln Thr Val Leu Thr Gly Gln		
	245	250

<210> 2377  
 <211> 762  
 <212> DNA  
 <213> Neisseria meningitidis

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 cagttggcaa tggaatatat gcgcggtcag gactaccgtc agngacggc aagtattgaa 180  
 gacgccttga aatcagaccc taaaaacgag cttgcctggc tggcccggtc cgaaatctat 240  
 caatacctga aagttaacga caaggcgag gaaagtctcc ggcaagnct ctccatcaaa 300  
 cccgacagt ccgaaatcaa caacaactac ngctgggtcc tgtgcggcag gctcaaccgc 360  
 cctgccgaat ctatggcata ttctgacaaa gccctggccg accccaenta cccganccct 420  
 tatattgccaa acctgaataa aggcataatgc agcgcaaaac aggggcaatt cggattggcg 480  
 gaagcctatt tgaaacgttc cctcgccgcc cagccgcagt tcccaccgc atttaaagaa 540  
 ctggcgcgca ccaaaatgct ggccgggcag ttgggcgatg ccgattacta ctttaaaaaa 600  
 taccaaagca gggtagaagt ccttcaggcc gatgatttgc tgctaggctg gaaaattgcc 660  
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<210> 2378  
 <211> 253  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2378  
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           35                          40                          45  
 Gly Gln Asp Tyr Arg Gln Xaa Thr Ala Ser Ile Glu Asp Ala Leu Lys  
           50                          55                          60  
 Ser Asp Pro Lys Asn Glu Leu Ala Trp Leu Val Arg Ala Glu Ile Tyr  
           65                          70                          75                          80  
 Gln Tyr Leu Lys Val Asn Asp Lys Ala Gln Glu Ser Phe Arg Gln Xaa  
                           85                          90                          95  
 Leu Ser Ile Lys Pro Asp Ser Ala Glu Ile Asn Asn Asn Tyr Xaa Trp  
                           100                          105                          110  
 Phe Leu Cys Gly Arg Leu Asn Arg Pro Ala Glu Ser Met Ala Tyr Phe  
           115                          120                          125  
 Asp Lys Ala Leu Ala Asp Pro Thr Tyr Pro Xaa Pro Tyr Ile Ala Asn  
           130                          135                          140  
 Leu Asn Lys Gly Ile Cys Ser Ala Lys Gln Gly Gln Phe Gly Leu Ala  
   145                          150                          155                          160  
 Glu Ala Tyr Leu Lys Arg Ser Leu Ala Ala Gln Pro Gln Phe Pro Pro  
                           165                          170                          175  
 Ala Phe Lys Glu Leu Ala Arg Thr Lys Met Leu Ala Gly Gln Leu Gly  
           180                          185                          190  
 Asp Ala Asp Tyr Tyr Phe Lys Lys Tyr Gln Ser Arg Val Glu Val Leu  
           195                          200                          205  
 Gln Ala Asp Asp Leu Leu Leu Gly Trp Lys Ile Ala Lys Ala Leu Gly  
           210                          215                          220  
 Asn Ala Gln Ala Ala Tyr Glu Tyr Glu Ala Gln Leu Gln Ala Asn Phe  
   225                          230                          235                          240  
 Pro Tyr Ser Glu Glu Leu Gln Thr Val Leu Ile Gly Gln  
           245                          250

<210> 2379

<211> 1380

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 2379

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 gctctgattg ccgcaatggg ctataccatc atttcattgg agtggctgcc gcatatgtcc 120  
 attattgccg ccatcgtcgt gctgattttg tacggcttgg cgcgcggttt gaaatacaac 180  
 gatatgcagg cagggatgat aggcgcgttg aatcagggta tgggcgcggt ttacctgttt 240  
 ttcttcacg ggctgatggt cagcgcgctg atgatgagcg gcgcgattcc gacgctgatg 300  
 tattacggtt tcgggctgat ttccccgact tatttttatt tttccgcctt cgcgctgtgt 360  
 tccgtcatcg gcgtgtccat cggcagcagc ctgaccgcct gcgccactgt cggcggttgcc 420

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tttatgggga tggcgggcggc gtttcaggcc gatatggcga tgacggcggg cgcgattggt 480
tccggtgtgt ttttcggcga taaaatgtcc ccgctttccg acaccacggg catttcgcg 540
tccatcgtcg gtatcgacct gtttgaacac atcaaaaaca tgatgtacac caccatccct 600
gcgtggctta tcagcgcggc actgatgctt tggcttcttc ccagcgtcgc cgcgaggat 660
ttgaacagcg tcgaatcctt ccgcagccag cttgaagcca cgggattggt gcacggctat 720
tcgctgattc cgtttgact gttggtcggt ttggcattga tgcgcgtcaa tgccgtggtc 780
gccatgctct ttaccgtcat tgccgcggtt gccgtaacgt atctgcacag cacgcccgat 840
ctgcgtcagc tcggcgcggt gttttatggc ggctacaaac tcgaaggcga agcgtttaaa 900
gacattgcca aactgatttc gcgcggcggc ttggagagta tgttctttac gcagaccatc 960
gttatcctcg gtatgagttt gggcgggctg ctgtttgccg tcggtgtgat tccttccttg 1020
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acttcggtcg ggggtcaattt cctgattgga gagcaatatt tgagcatcct gctttcggga 1140
gaaacgttca aaccggttta cgacaaactc ggcctgcatt cgtgcaacct gtcgcggtact 1200
ctggaagatg cggggacggt gattaacccg ctcgcgccgt ggagcgtgtg cggcggtattt 1260
atcagccacg cccttggcgt acccgtttgg gaatatctgc cttatgcctt tttctgctat 1320
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<210> 2380

<211> 459

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 2380

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Met Phe Ala Phe Lys Ser Leu Leu Asp Met Pro Arg Gly Glu Ala Leu
  1             5             10             15

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Ala Val Val Val Ala Leu Ile Ala Ala Met Gly Tyr Thr Ile Ile Ser
      20             25             30

```

```

Leu Glu Trp Leu Pro His Met Ser Ile Ile Ala Ala Ile Val Val Leu
    35             40             45

```

```

Ile Leu Tyr Gly Leu Ala Arg Gly Leu Lys Tyr Asn Asp Met Gln Ala
    50             55             60

```

```

Gly Met Ile Gly Ala Leu Asn Gln Gly Met Gly Ala Val Tyr Leu Phe
    65             70             75             80

```

```

Phe Phe Ile Gly Leu Met Val Ser Ala Leu Met Met Ser Gly Ala Ile
      85             90             95

```

```

Pro Thr Leu Met Tyr Tyr Gly Phe Gly Leu Ile Ser Pro Thr Tyr Phe
    100            105            110

```

```

Tyr Phe Ser Ala Phe Ala Leu Cys Ser Val Ile Gly Val Ser Ile Gly
    115            120            125

```

```

Ser Ser Leu Thr Ala Cys Ala Thr Val Gly Val Ala Phe Met Gly Met
    130            135            140

```

```

Ala Ala Ala Phe Gln Ala Asp Met Ala Met Thr Ala Gly Ala Ile Val
    145            150            155            160

```

```

Ser Gly Val Phe Phe Gly Asp Lys Met Ser Pro Leu Ser Asp Thr Thr
    165            170            175

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Gly	Ile	Ser	Ala	Ser	Ile	Val	Gly	Ile	Asp	Leu	Phe	Glu	His	Ile	Lys	180	185	190
Asn	Met	Met	Tyr	Thr	Thr	Ile	Pro	Ala	Trp	Leu	Ile	Ser	Ala	Ala	Leu	195	200	205
Met	Leu	Trp	Leu	Leu	Pro	Ser	Val	Ala	Ala	Gln	Asp	Leu	Asn	Ser	Val	210	215	220
Glu	Ser	Phe	Arg	Ser	Gln	Leu	Glu	Ala	Thr	Gly	Leu	Val	His	Gly	Tyr	225	230	235
Ser	Leu	Ile	Pro	Phe	Ala	Leu	Leu	Val	Val	Leu	Ala	Leu	Met	Arg	Val	245	250	255
Asn	Ala	Val	Val	Ala	Met	Leu	Phe	Thr	Val	Ile	Ala	Ala	Val	Ala	Val	260	265	270
Thr	Tyr	Leu	His	Ser	Thr	Pro	Asp	Leu	Arg	Gln	Leu	Gly	Ala	Trp	Phe	275	280	285
Tyr	Gly	Gly	Tyr	Lys	Leu	Glu	Gly	Glu	Ala	Phe	Lys	Asp	Ile	Ala	Lys	290	295	300
Leu	Ile	Ser	Arg	Gly	Gly	Leu	Glu	Ser	Met	Phe	Phe	Thr	Gln	Thr	Ile	305	310	315
Val	Ile	Leu	Gly	Met	Ser	Leu	Gly	Gly	Leu	Leu	Phe	Ala	Leu	Gly	Val	325	330	335
Ile	Pro	Ser	Leu	Leu	Glu	Ala	Val	Arg	Thr	Phe	Leu	Thr	Asn	Ala	Gly	340	345	350
Arg	Ala	Thr	Phe	Ser	Val	Ala	Met	Thr	Ser	Val	Gly	Val	Asn	Phe	Leu	355	360	365
Ile	Gly	Glu	Gln	Tyr	Leu	Ser	Ile	Leu	Leu	Ser	Gly	Glu	Thr	Phe	Lys	370	375	380
Pro	Val	Tyr	Asp	Lys	Leu	Gly	Leu	His	Ser	Cys	Asn	Leu	Ser	Arg	Thr	385	390	395
Leu	Glu	Asp	Ala	Gly	Thr	Val	Ile	Asn	Pro	Leu	Val	Pro	Trp	Ser	Val	405	410	415
Cys	Gly	Val	Phe	Ile	Ser	His	Ala	Leu	Gly	Val	Pro	Val	Trp	Glu	Tyr	420	425	430
Leu	Pro	Tyr	Ala	Phe	Phe	Cys	Tyr	Leu	Ser	Leu	Ala	Leu	Thr	Leu	Leu	435	440	445
Phe	Gly	Trp	Thr	Gly	Leu	Thr	Leu	Ser	Lys	Lys						450	455	

<210> 2381

<211> 1380  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2381  
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 attattgccg ccatacgtcgt gctgattttg tacggcttgg ccgcgcggtt gaaatacaac 180  
 gatatgcagc agggcatgat aggcgcggtg aatcagggtg tgggcgcgat ttacctgttt 240  
 ttcttcacgc ggctgatggg cagcgcgctg atgatgagcg gcgcgattcc gacgctgatg 300  
 tattacgggtt tcggactgat ttccccgact tatttttatt ttctctcctt ccgcgtgtgt 360  
 tccgtcatcg gcgtgtccat cggcagcagc ctgaccacct gcgccactgt cggcgttgcc 420  
 tttatgggga tggcggcggc gtttcaggcc gatatggcga tgacggcggg ccgcattggt 480  
 tcgggcgcgt tttttggcga caaaatgtcc ccgctttcgg atacgacggg tatttcgcg 540  
 tccatcgtcg gcatacactt gtttgagcac atcaaaaata tgatgtacac caccatcccc 600  
 gcgtggctca ttagtgccgc actgatgctt tggcttttgc cgaatgtcgc ccgcgaggat 660  
 ttgaacagcg tcgaatcctt ccgcagccag cttgaagcca cgggattggg gcacggctat 720  
 tcgctgattc cgtttgcgct gttggtcatt ttggcattga tgcgcacaa ccgcgtcgtc 780  
 gccatgctct ttaccgtcat ggttgccgtt gctgtaacgt atctgcacag cagccccgat 840  
 ctgcgtcagc tcggtgcgtg gttttacggc ggctacaaac tcgaaggcga agcgtttaaa 900  
 gatgttgtca aactgatttc gcgcggcggg ttggaaagta tgtttttcac gcaaaccatc 960  
 gtgattctcg ggatgagttt gggcggactg ttggttgccg tcggtgtgat tccttccttg 1020  
 ttggaggcca tccgtacctt cttgacgaat gccggacgcg ccgacgttcag cgttgccatg 1080  
 acttcggtcg gggtaattt cctgatcggc gagcaatatt tgagtatttt gttgtcgggt 1140  
 gaaacgttca aaccggttta cgataagctc ggtctgcatt ccgcgaatct gtcgcggacg 1200  
 ctggaagatg cggggacggg gattaaccgc cctgtaccgt ggagcgtatg cggcgtgttc 1260  
 atcagccacg cgctgggcgt gccggttttg gaatatctgc cgtatgcctt tttctgctat 1320  
 ttgagtttgg ctttgaccct gttattcggg tggacggggc tgactttgag caaaaaataa 1380

<210> 2382  
 <211> 459  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2382  
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 20 25 30  
 Leu Glu Trp Leu Pro His Met Ser Ile Ile Ala Ala Ile Val Val Leu  
 35 40 45  
 Ile Leu Tyr Gly Leu Ala Arg Gly Leu Lys Tyr Asn Asp Met Gln Gln  
 50 55 60  
 Gly Met Ile Gly Ala Leu Asn Gln Gly Met Gly Ala Ile Tyr Leu Phe  
 65 70 75 80  
 Phe Phe Ile Gly Leu Met Val Ser Ala Leu Met Met Ser Gly Ala Ile  
 85 90 95  
 Pro Thr Leu Met Tyr Tyr Gly Phe Gly Leu Ile Ser Pro Thr Tyr Phe  
 100 105 110

Tyr	Phe	Ser	Ser	Phe	Ala	Leu	Cys	Ser	Val	Ile	Gly	Val	Ser	Ile	Gly	115	120	125
Ser	Ser	Leu	Thr	Thr	Cys	Ala	Thr	Val	Gly	Val	Ala	Phe	Met	Gly	Met	130	135	140
Ala	Ala	Ala	Phe	Gln	Ala	Asp	Met	Ala	Met	Thr	Ala	Gly	Ala	Ile	Val	145	150	155
Ser	Gly	Ala	Phe	Phe	Gly	Asp	Lys	Met	Ser	Pro	Leu	Ser	Asp	Thr	Thr	165	170	175
Gly	Ile	Ser	Ala	Ser	Ile	Val	Gly	Ile	Asp	Leu	Phe	Glu	His	Ile	Lys	180	185	190
Asn	Met	Met	Tyr	Thr	Thr	Ile	Pro	Ala	Trp	Leu	Ile	Ser	Ala	Ala	Leu	195	200	205
Met	Leu	Trp	Leu	Leu	Pro	Asn	Val	Ala	Ala	Gln	Asp	Leu	Asn	Ser	Val	210	215	220
Glu	Ser	Phe	Arg	Ser	Gln	Leu	Glu	Ala	Thr	Gly	Leu	Val	His	Gly	Tyr	225	230	235
Ser	Leu	Ile	Pro	Phe	Ala	Leu	Leu	Val	Ile	Leu	Ala	Leu	Met	Arg	Ile	245	250	255
Asn	Ala	Val	Val	Ala	Met	Leu	Phe	Thr	Val	Met	Val	Ala	Val	Ala	Val	260	265	270
Thr	Tyr	Leu	His	Ser	Thr	Pro	Asp	Leu	Arg	Gln	Leu	Gly	Ala	Trp	Phe	275	280	285
Tyr	Gly	Gly	Tyr	Lys	Leu	Glu	Gly	Glu	Ala	Phe	Lys	Asp	Val	Val	Lys	290	295	300
Leu	Ile	Ser	Arg	Gly	Gly	Leu	Glu	Ser	Met	Phe	Phe	Thr	Gln	Thr	Ile	305	310	315
Val	Ile	Leu	Gly	Met	Ser	Leu	Gly	Gly	Leu	Leu	Phe	Ala	Leu	Gly	Val	325	330	335
Ile	Pro	Ser	Leu	Leu	Glu	Ala	Ile	Arg	Thr	Phe	Leu	Thr	Asn	Ala	Gly	340	345	350
Arg	Ala	Thr	Phe	Ser	Val	Ala	Met	Thr	Ser	Val	Gly	Val	Asn	Phe	Leu	355	360	365
Ile	Gly	Glu	Gln	Tyr	Leu	Ser	Ile	Leu	Leu	Ser	Gly	Glu	Thr	Phe	Lys	370	375	380
Pro	Val	Tyr	Asp	Lys	Leu	Gly	Leu	His	Ser	Arg	Asn	Leu	Ser	Arg	Thr	385	390	395
Leu	Glu	Asp	Ala	Gly	Thr	Val	Ile	Asn	Pro	Leu	Val	Pro	Trp	Ser	Val	405	410	415

Cys Gly Val Phe Ile Ser His Ala Leu Gly Val Pro Val Trp Glu Tyr  
 420 425 430

Leu Pro Tyr Ala Phe Phe Cys Tyr Leu Ser Leu Ala Leu Thr Leu Leu  
 435 440 445

Phe Gly Trp Thr Gly Leu Thr Leu Ser Lys Lys  
 450 455

<210> 2383  
 <211> 1380  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2383  
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 attattgccg ccacgtngt gctgattttg tacggcttgg ccgcgcggtt gaaatacaac 180  
 gatatgcagc agggcatgat aggcgcggtg aatcagggtg tgggcgcgat ttacctnttt 240  
 ttcttcacgc ggctgatggg cagcgcgctg atgatgagcg gcgcgattcc gacgctgatg 300  
 tattacgggt tcggactgat ttccccgact tatttttatt ttccgcctt ccgcgctgtg 360  
 tccgtcatcg gcgtgtccat cggcagcagc ctgaccacct gcgccactgt cggcggttgc 420  
 ttnatgggta tnnngncggc gtttcnggcc nanatggngn ngngngnggn cnggattgtn 480  
 nnggncgcat tnttnggcgn caaaatgtcn ccgctttccg atacgncggg catntccgcg 540  
 tccattgtcg gtatcgacct gtttgaacac atcaaaaata tgatgtacac naccattccc 600  
 gcgtggctca tcagtgnnnc actgatgctg tngcttcttc ccagcgtcgc cgcgcaggat 660  
 ttgaacagcg tcgaatcctt ccgcagccag cttgaagcca cgggattggg gactgtctat 720  
 tcgctgattc cgtttgcgct gttggtcgtt ttggcattga tgcgcgtcaa tgcggtggtc 780  
 gctatgctct ttaccgtcat tgccgccgtt gccgtaacgt atctgcacag caccgccgat 840  
 ctgcgtcagc tcggcgcgtg gttttacggc ggctacaaac tcgaaggcga agcgtntana 900  
 gacattgcca aactcatttc tcgcggcgtt ttggaaaagta tgtttttcac gcagaccatc 960  
 gtgattcttg ggatgagcct tggcgggctg ctgtttgac tgggcgcgat tccttccctg 1020  
 ctggatgccg tccgcagctt tttgacgaat gccgggcgtn ccacattcag cgttgccatg 1080  
 acttcggctg gggttaattt cctgatcggc gagcaatatt tgagtatttt gttgtcnggt 1140  
 gaaacgttca aacctgttta cgataagctc ggtctgcatt cgcgcaatct gtcgcggacg 1200  
 ctggaagatg cggggacggg catcaacccg ctcgtaccgt ggagcgtatg cggcgtgttc 1260  
 atcanccacg cgctgggcgt gccggtttgg gaatatctgc cgtatgcctt tttctgctat 1320  
 ttgagtttgg ctttgaccct gttattcgtt tggacggggc tgactttgag caaaaaataa 1380

<210> 2384  
 <211> 459  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2384  
 Met Phe Ala Phe Xaa Ser Leu Leu Asp Met Pro Arg Gly Glu Ala Leu  
 1 5 10 15  
 Ala Val Val Val Ala Leu Ile Ala Ala Met Gly Tyr Thr Ile Ile Xaa  
 20 25 30  
 Leu Glu Trp Leu Pro His Met Ser Ile Ile Ala Ala Ile Val Val Leu  
 35 40 45  
 Ile Leu Tyr Gly Leu Ala Arg Gly Leu Lys Tyr Asn Asp Met Gln Gln

5

55

5

5

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5

55

5

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5

5

5

5

5

5

5

5

355		360		365
Ile Gly Glu Gln Tyr Leu Ser	Ile Leu Leu Ser Gly Glu Thr Phe Lys			
370	375	380		
Pro Val Tyr Asp Lys Leu Gly Leu His Ser Arg Asn Leu Ser Arg Thr				
385	390	395	400	
Leu Glu Asp Ala Gly Thr Val Ile Asn Pro Leu Val Pro Trp Ser Val				
	405	410	415	
Cys Gly Val Phe Ile Xaa His Ala Leu Gly Val Pro Val Trp Glu Tyr				
	420	425	430	
Leu Pro Tyr Ala Phe Phe Cys Tyr Leu Ser Leu Ala Leu Thr Leu Leu				
	435	440	445	
Phe Gly Trp Thr Gly Leu Thr Leu Ser Lys Lys				
450	455			

<210> 2385

<211> 378

<212> DNA

<213> Neisseria meningitidis

<400> 2385

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cagttaaata tcccgcgttt ggagcagttg gtcagatttt tcaaaatcga tatgtgggac 180
ttgctcaaat cgggcggttg tgggatggtg ttccagatta atgaagggtg tagtggtggc 240
gatattgcgt tgtatgcgtc gggatgatgtt tcgatgaaaa tagaattttt aaaaatggag 300
ttgaaacact gcaaagaaat gttggaacaa aaagacaaaag aaatcgagct gctccgcaag 360
ctgaccgaaa ccgtttta

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<210> 2386

<211> 125

<212> PRT

<213> Neisseria meningitidis

<400> 2386

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Ser Gln Glu Asp Met Ala Glu Lys Leu Ala Met Ser Ala Gly Gly Tyr				
	20	25	30	
Ala Lys Ile Glu Arg Gly Glu Thr Gln Leu Asn Ile Pro Arg Leu Glu				
	35	40	45	
Gln Leu Ala Gln Ile Phe Lys Ile Asp Met Trp Asp Leu Leu Lys Ser				
	50	55	60	
Gly Gly Gly Gly Met Val Phe Gln Ile Asn Glu Gly Asp Ser Gly Gly				
	65	70	75	80

Asp Ile Ala Leu Tyr Ala Ser Gly Asp Val Ser Met Lys Ile Glu Phe  
85 90 95

Leu Lys Met Glu Leu Lys His Cys Lys Glu Met Leu Glu Gln Lys Asp  
100 105 110

Lys Glu Ile Glu Leu Leu Arg Lys Leu Thr Glu Thr Val  
115 120 125

<210> 2387

<211> 381

<212> DNA

<213> Neisseria meningitidis

<400> 2387

atggaaaccc acgaaaaaat ccgcctgatg cgcgaattga ataaatggtc ccaggaggat 60  
atggcggaaa agctggcgat gtcggcaggc gggatatgcca aaatcgaacg aggcgaaacg 120  
cagttgaata tccgcggtt ggagcagttg ggcagattt tcaaaattga tatgtgggac 180  
ttgctcaaat cgggcgggcg cgggatgggtg ttgcagatta acgatgtgga taccaacagc 240  
ggggaatttg caatctatac cgctcaggat gcacnnggta aagctggatt tgtaaaatg 300  
gaattaaaac actgtaaaga aatgttgga cacaagaca aagaaatcga gctgctccgc 360  
aagctgaccg aaaccgttta a 381

<210> 2388

<211> 126

<212> PRT

<213> Neisseria meningitidis

<400> 2388

Met Glu Thr His Glu Lys Ile Arg Leu Met Arg Glu Leu Asn Lys Trp  
1 5 10 15

Ser Gln Glu Asp Met Ala Glu Lys Leu Ala Met Ser Ala Gly Gly Tyr  
20 25 30

Ala Lys Ile Glu Arg Gly Glu Thr Gln Leu Asn Ile Pro Arg Leu Glu  
35 40 45

Gln Leu Ala Gln Ile Phe Lys Ile Asp Met Trp Asp Leu Leu Lys Ser  
50 55 60

Gly Gly Gly Gly Met Val Leu Gln Ile Asn Asp Val Asp Thr Asn Ser  
65 70 75 80

Gly Glu Phe Ala Ile Tyr Thr Ala Gln Asp Ala Ser Gly Lys Ala Gly  
85 90 95

Phe Val Lys Met Glu Leu Lys His Cys Lys Glu Met Leu Glu His Lys  
100 105 110

Asp Lys Glu Ile Glu Leu Leu Arg Lys Leu Thr Glu Thr Val  
115 120 125

<210> 2389

<211> 1296  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2389  
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 ctggaaagta aaaagggttac ggcgagagc taccgcaatc tgacagcctc cgaaattgcc 120  
 aaagtctata cgattgcccg catgaccgac ttggatatgc tcaacgacat caaaacttcg 180  
 atggttgaat cggcaaaaag tggacagtcg tttgacgatt ggcgaaaagg tatcttgaat 240  
 ctgctcagca acaagggctg gctgcatccg aacgggcata acggttaagga tatcatcgac 300  
 ccagccaccg gcgaggtatt cggttcgccg cggaggttgg agacgattta ccgtaccaat 360  
 atgcaaaactg cctacaacgc cggtaaatat caaggatata tggcaaatat tgatgcacga 420  
 ccttatttga tgtatgacgc ggtaggcgac agccgcaccc gtccggcgca ttcggcaata 480  
 gacgggctgg tgtaccgcta cgacgaccgc ttttgggcaa cgttttaccc gcccaacggc 540  
 tacaactgcc gctgctcggt catcgcgctg tcggagcggg atgtggaacg ccagggggcg 600  
 attgttgggc aaagcacggc ggacaatctg gtcgagaccc ataaaatcta caacaaaaaa 660  
 ggcgatactt atctgacctt tgcctataaa gcaccggatg gcagtctgta cagcaccgat 720  
 cgaggatttg attacaacgc cggacgaatg aactaccgcc ccgattttaga caagtacgac 780  
 cgtgcgttgg cgcatacaatt tgccaaagcg gaaatgggtg gtgcggattt taaaaccagc 840  
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 cccgataaag agcagaaaaa caaatccga aatgcgctat caagacagct taaatttgct 960  
 gcgggtgtat tgagcaagga aacgcaagaa ttggcaggta tgacacgagc gacggtgtgg 1020  
 ctgtctgatg atacgttggg taaacaggta gacagccgtg aggggcagaa ttctgatgac 1080  
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 cgtgaattga ttttcacagc tcgctataaa ggctcggcat tgtgggcagt tttaaaatat 1200  
 attaaggagg tggatgagat ttatctacag tcgtaccgaa tcagtaacga caaagagatt 1260  
 gccaaattta tggcgaagaa gaaagtattg aaatag 1296

<210> 2390  
 <211> 431  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2390  
 Met Pro Ala Pro Asp Leu Gly Phe Ala Leu Ser Leu Pro Pro Lys Lys  
 1 5 10 15  
 Ala Ile Glu Trp Leu Glu Ser Lys Lys Val Thr Ala Glu Ser Tyr Arg  
 20 25 30  
 Asn Leu Thr Ala Ser Glu Ile Ala Lys Val Tyr Thr Ile Ala Arg Met  
 35 40 45  
 Thr Asp Leu Asp Met Leu Asn Asp Ile Lys Thr Ser Met Val Glu Ser  
 50 55 60  
 Ala Lys Ser Gly Gln Ser Phe Asp Asp Trp Arg Lys Gly Ile Leu Asn  
 65 70 75 80  
 Leu Leu Ser Asn Lys Gly Trp Leu His Pro Asn Gly His Asn Gly Lys  
 85 90 95  
 Asp Ile Ile Asp Pro Ala Thr Gly Glu Val Phe Gly Ser Pro Arg Arg  
 100 105 110  
 Leu Glu Thr Ile Tyr Arg Thr Asn Met Gln Thr Ala Tyr Asn Ala Gly



115		120		125
Gln Tyr Gln Gly Tyr Met	Ala Asn Ile Asp Ala Arg Pro Tyr Trp Met			
130	135	140		
Tyr Asp Ala Val Gly Asp Ser Arg Thr Arg Pro Ala His Ser Ala Ile				
145	150	155	160	
Asp Gly Leu Val Tyr Arg Tyr Asp Asp Pro Phe Trp Ala Thr Phe Tyr				
	165	170	175	
Pro Pro Asn Gly Tyr Asn Cys Arg Cys Ser Val Ile Ala Leu Ser Glu				
	180	185	190	
Arg Asp Val Glu Arg Gln Gly Arg Ile Val Gly Gln Ser Thr Ala Asp				
	195	200	205	
Asn Leu Val Glu Thr His Lys Ile Tyr Asn Lys Lys Gly Asp Thr Tyr				
	210	215	220	
Leu Thr Leu Ala Tyr Lys Ala Pro Asp Gly Ser Leu Tyr Thr Thr Asp				
	225	230	235	240
Arg Gly Phe Asp Tyr Asn Ala Gly Arg Met Asn Tyr Arg Pro Asp Leu				
	245	250	255	
Asp Lys Tyr Asp Arg Ala Leu Ala His Gln Phe Ala Lys Ala Glu Met				
	260	265	270	
Gly Gly Ala Asp Phe Lys Thr Ser Phe Lys Gln Leu Glu Lys Glu Phe				
	275	280	285	
Tyr Glu Val Lys Gln Arg Leu Asp Ile Asp Gly Lys Pro Asp Lys Glu				
	290	295	300	
Gln Lys Ile Lys Ile Arg Asn Ala Leu Ser Arg Gln Leu Lys Phe Ala				
	305	310	315	320
Ala Gly Val Leu Ser Lys Glu Thr Gln Glu Leu Ala Gly Met Thr Arg				
	325	330	335	
Ala Thr Val Trp Leu Ser Asp Asp Thr Leu Val Lys Gln Val Asp Ser				
	340	345	350	
Arg Glu Gly Gln Asn Phe Asp Asp Ser Tyr Tyr Ala Phe Leu Pro Asp				
	355	360	365	
Met Leu Gln Asn Pro Glu His Val Ile Arg Asp Asn Arg Glu Leu Ile				
	370	375	380	
Phe Thr Ala Arg Tyr Lys Gly Ser Ala Leu Trp Ala Val Leu Lys Tyr				
	385	390	395	400
Ile Lys Glu Val Asp Glu Ile Tyr Leu Gln Ser Tyr Arg Ile Ser Asn				
	405	410	415	
Asp Lys Glu Ile Ala Lys Phe Met Ala Lys Lys Lys Val Leu Lys				

420

425

430

<210> 2391  
 <211> 1296  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 2391  
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 aaagtctata cgattgcccg catgaccgac ttggatatgc tcaacgacat caaaacttcg 180  
 atggttgaat cggcaaaaag tggacagtcg tttgacgatt ggcgaaaagg tatcttgaat 240  
 ctgctcagca acaagggctg gctgcatccg aacgggcata acggttaagga tatcatcgac 300  
 ccagccaccg gcgaggtatt cggttcgccg cggaggttgg agacgattta ccgtaccaac 360  
 atgcaaaactg cctacaacgc cgggtcaatat caaggatata tggcaaatat tgatgcacga 420  
 ccttatttga tgtatgacgc ggtaggcgac agccgcaccc gtccggcgca ttcggcaata 480  
 gacgggctgg tgtaccgcta cgacgaccgc ttttgggcaa cgttttaccc gcccaacggc 540  
 tacaactgcc gttgctcggg catcgcgctg tcggagcggg atgtggaacg ccaggggcgg 600  
 attgtcgggc aaagcacgtc ggacaatctt gttgagaccc ataaaaatcta caacaaaaaa 660  
 ggcgatactt atctgaccct tgccataaaa gcaccggatg gcagtctgta cacgaccgat 720  
 cgaggatttg attacaacgc cggacgaatg aactaccgcc ccgattttaga caagtacgac 780  
 cgtgcgttgg cgcacatcaatt tgccaaagcg gaaatgggtg gtgcggattt taaaaccagc 840  
 tttaaaccagc ttgaaaaaga gttttatgaa gtcaagcaac gtttggatat tgatggcaag 900  
 cccgataaag agcagaaaat caaaatccga aatgcgctat caagacagct taaatttgct 960  
 gcgggtgtat tgagcaagga aacgcaagaa ttggcaggta tgacacgagc gacggtgtgg 1020  
 ctgtctgatg atacgttggg taaacaggta gacagccgtg aagggcagaa tttcgatgac 1080  
 tctactatg cttttttgcc ggatatgctg caaaaccctg aacatgtcat ccgcgacaat 1140  
 cgtgaattga ttttcacagc tcgctataaa ggctcggcat tgtgggcagt tttaaaatat 1200  
 attaaggagg tggatgagat ttatctacag tcgtaccgaa tcagtaacga caaagagatt 1260  
 gccaaattta tggcgaagaa gaaagtattg aaatag 1296

<210> 2392  
 <211> 431  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 2392  
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 Ala Ile Glu Trp Leu Glu Ser Lys Lys Val Thr Ala Glu Ser Tyr Arg  
 20 25 30  
 Asn Leu Thr Ala Ser Glu Ile Ala Lys Val Tyr Thr Ile Ala Arg Met  
 35 40 45  
 Thr Asp Leu Asp Met Leu Asn Asp Ile Lys Thr Ser Met Val Glu Ser  
 50 55 60  
 Ala Lys Ser Gly Gln Ser Phe Asp Asp Trp Arg Lys Gly Ile Leu Asn  
 65 70 75 80  
 Leu Leu Ser Asn Lys Gly Trp Leu His Pro Asn Gly His Asn Gly Lys  
 85 90 95

Asp Ile Ile Asp Pro Ala Thr Gly Glu Val Phe Gly Ser Pro Arg Arg  
 100 105 110  
 Leu Glu Thr Ile Tyr Arg Thr Asn Met Gln Thr Ala Tyr Asn Ala Gly  
 115 120 125  
 Gln Tyr Gln Gly Tyr Met Ala Asn Ile Asp Ala Arg Pro Tyr Trp Met  
 130 135 140  
 Tyr Asp Ala Val Gly Asp Ser Arg Thr Arg Pro Ala His Ser Ala Ile  
 145 150 155 160  
 Asp Gly Leu Val Tyr Arg Tyr Asp Asp Pro Phe Trp Ala Thr Phe Tyr  
 165 170 175  
 Pro Pro Asn Gly Tyr Asn Cys Arg Cys Ser Val Ile Ala Leu Ser Glu  
 180 185 190  
 Arg Asp Val Glu Arg Gln Gly Arg Ile Val Gly Gln Ser Thr Ser Asp  
 195 200 205  
 Asn Leu Val Glu Thr His Lys Ile Tyr Asn Lys Lys Gly Asp Thr Tyr  
 210 215 220  
 Leu Thr Leu Ala Tyr Lys Ala Pro Asp Gly Ser Leu Tyr Thr Thr Asp  
 225 230 235 240  
 Arg Gly Phe Asp Tyr Asn Ala Gly Arg Met Asn Tyr Arg Pro Asp Leu  
 245 250 255  
 Asp Lys Tyr Asp Arg Ala Leu Ala His Gln Phe Ala Lys Ala Glu Met  
 260 265 270  
 Gly Gly Ala Asp Phe Lys Thr Ser Phe Lys Gln Leu Glu Lys Glu Phe  
 275 280 285  
 Tyr Glu Val Lys Gln Arg Leu Asp Ile Asp Gly Lys Pro Asp Lys Glu  
 290 295 300  
 Gln Lys Ile Lys Ile Arg Asn Ala Leu Ser Arg Gln Leu Lys Phe Ala  
 305 310 315 320  
 Ala Gly Val Leu Ser Lys Glu Thr Gln Glu Leu Ala Gly Met Thr Arg  
 325 330 335  
 Ala Thr Val Trp Leu Ser Asp Asp Thr Leu Val Lys Gln Val Asp Ser  
 340 345 350  
 Arg Glu Gly Gln Asn Phe Asp Asp Ser Tyr Tyr Ala Phe Leu Pro Asp  
 355 360 365  
 Met Leu Gln Asn Pro Glu His Val Ile Arg Asp Asn Arg Glu Leu Ile  
 370 375 380  
 Phe Thr Ala Arg Tyr Lys Gly Ser Ala Leu Trp Ala Val Leu Lys Tyr  
 385 390 395 400

Ile Lys Glu Val Asp Glu Ile Tyr Leu Gln Ser Tyr Arg Ile Ser Asn  
 405 410 415

Asp Lys Glu Ile Ala Lys Phe Met Ala Lys Lys Lys Val Leu Lys  
 420 425 430

<210> 2393  
 <211> 1413  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2393  
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 attgaattta acaccgcaa tgccgtacaa ggtttgccgc aaaatccgca aaaggtattg 120  
 atggttgac ccattgctgac cgcgggcata cagccgcct tagagccggt gcaactattt 180  
 agcgatgccg aggcggccga tttgttcgga caaggctcgc tggcgcatth gatggtgcgc 240  
 caagcatttg ccaacaaccc ttatttggtt ttgaccgtta tccgtattgc cgaccacagc 300  
 gcaggcgtgc aggcaaccgc aaccgttacc ctttccggca cggccaccgc gccgggctg 360  
 gtggaaatca cgattggcgg caagcaggtt agcacggccg ttaacaccgc cgagaccgcc 420  
 gccacagtgg cagaccgtct gaaaaccgcc atcactgccg ccgatgtaac cgttaccgca 480  
 tccggcagcg gcgcagccgt tacgctgacg gccaaacaca aaggcgagat cggcaacgag 540  
 agcggcttaa ccgtgagcac cggcaatacc ggcctaactt atcaagccaa tgcctttacc 600  
 ggcgggtgcca aaaatgcgga cattgccacg gccttgtcca aagtggcggg caagcattat 660  
 cacattattt gcagcccggt tagcgatgac gccaacgcca aagccttgag caaccatatt 720  
 accaacgtat ccaacgccat cgagcagcgc ggctgtatcg gcgtattggg tatgagtgcg 780  
 gccttgagca cggccaccac cgctaccggc gaaatcaacg acggccgcct gacctgtgct 840  
 tgggtacaaag gtgcggtaga gccaaacggc atcatcgccg cagggttatgc ggcgggtgtg 900  
 gcctttgaag aagaccctgc caagccgctg aacacgctgg aaatcaaagg gctggccgtt 960  
 acacctgatg cgcaatggcc gctgtttgca gaatgcaaca atgcgctgta caacggcttg 1020  
 accccgctca cagtgggtcaa caaccgctg cagattatgc gtgccgtatc cacctatacc 1080  
 aagtcggcca acaacaccga cgaccggcca ctactcgaca ttaccacat ccgcacgctg 1140  
 gattatgtgc gccgcagcgt taaagagcgc attgccctgc gttttccgcg cgacaaattg 1200  
 agcgaccgcc tgctgcccga ggtaagagc gagattttg acgtgctgat taagctcgac 1260  
 caagccgaaa tcatcgaaaa cgcgagggc aacaaaggca agctgggtgt ggcgcgtgcg 1320  
 caaaacgacc ccaaccgtgt taatgccatt atccccgccg atgtggtcaa cggcctgcac 1380  
 gtctttgccg ggcgcattga tttgattttg taa 1413

<210> 2394  
 <211> 470  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2394  
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 20 25 30  
 Pro Gln Asn Pro Gln Lys Val Leu Met Val Ala Pro Met Leu Thr Ala  
 35 40 45  
 Gly Ile Gln Pro Ala Leu Glu Pro Val Gln Leu Phe Ser Asp Ala Glu  
 50 55 60

Ala	Ala	Asp	Leu	Phe	Gly	Gln	Gly	Ser	Leu	Ala	His	Leu	Met	Val	Arg	
65					70					75					80	
Gln	Ala	Phe	Ala	Asn	Asn	Pro	Tyr	Leu	Asp	Leu	Thr	Val	Ile	Gly	Ile	
				85					90					95		
Ala	Asp	His	Ser	Ala	Gly	Val	Gln	Ala	Thr	Ala	Thr	Val	Thr	Leu	Ser	
			100					105					110			
Gly	Thr	Ala	Thr	Ala	Pro	Gly	Val	Val	Glu	Ile	Thr	Ile	Gly	Gly	Lys	
		115					120					125				
Gln	Val	Ser	Thr	Ala	Val	Asn	Thr	Gly	Glu	Thr	Ala	Ala	Thr	Val	Ala	
	130					135					140					
Asp	Arg	Leu	Lys	Thr	Ala	Ile	Thr	Ala	Ala	Asp	Val	Thr	Val	Thr	Ala	
145					150					155					160	
Ser	Gly	Ser	Gly	Ala	Ala	Val	Thr	Leu	Thr	Ala	Lys	His	Lys	Gly	Glu	
				165					170					175		
Ile	Gly	Asn	Glu	Ser	Gly	Leu	Thr	Val	Ser	Thr	Gly	Asn	Thr	Gly	Leu	
		180						185					190			
Thr	Tyr	Gln	Ala	Asn	Ala	Phe	Thr	Gly	Gly	Ala	Lys	Asn	Ala	Asp	Ile	
		195					200					205				
Ala	Thr	Ala	Leu	Ser	Lys	Val	Ala	Gly	Lys	His	Tyr	His	Ile	Ile	Cys	
	210					215					220					
Ser	Pro	Phe	Ser	Asp	Asp	Ala	Asn	Ala	Lys	Ala	Leu	Ser	Asn	His	Ile	
225					230					235					240	
Thr	Asn	Val	Ser	Asn	Ala	Ile	Glu	Gln	Arg	Gly	Cys	Ile	Gly	Val	Leu	
				245					250					255		
Gly	Met	Ser	Ala	Ala	Leu	Ser	Thr	Ala	Thr	Thr	Ala	Thr	Gly	Glu	Ile	
			260					265					270			
Asn	Asp	Gly	Arg	Met	Thr	Cys	Ala	Trp	Tyr	Lys	Gly	Ala	Val	Glu	Pro	
		275					280					285				
Asn	Gly	Ile	Ile	Ala	Ala	Gly	Tyr	Ala	Ala	Val	Leu	Ala	Phe	Glu	Glu	
	290					295					300					
Asp	Pro	Ala	Lys	Pro	Leu	Asn	Thr	Leu	Glu	Ile	Lys	Gly	Leu	Ala	Val	
305					310					315					320	
Thr	Pro	Asp	Ala	Gln	Trp	Pro	Leu	Phe	Ala	Glu	Cys	Asn	Asn	Ala	Leu	
				325					330					335		
Tyr	Asn	Gly	Leu	Thr	Pro	Leu	Thr	Val	Val	Asn	Asn	Arg	Val	Gln	Ile	
			340					345					350			
Met	Arg	Ala	Val	Ser	Thr	Tyr	Thr	Lys	Ser	Ala	Asn	Asn	Thr	Asp	Asp	
			355				360					365				

Pro Ala Leu Leu Asp Ile Thr Thr Ile Arg Thr Leu Asp Tyr Val Arg  
 370 375 380

Arg Ser Val Lys Glu Arg Ile Ala Leu Arg Phe Pro Arg Asp Lys Leu  
 385 390 395 400

Ser Asp Arg Leu Leu Pro Lys Val Lys Ser Glu Ile Leu Asp Val Leu  
 405 410 415

Ile Lys Leu Asp Gln Ala Glu Ile Ile Glu Asn Ala Glu Ala Asn Lys  
 420 425 430

Gly Lys Leu Val Val Ala Arg Ala Gln Asn Asp Pro Asn Arg Val Asn  
 435 440 445

Ala Ile Ile Pro Ala Asp Val Val Asn Gly Leu His Val Phe Ala Gly  
 450 455 460

Arg Ile Asp Leu Ile Leu  
 465 470

<210> 2395

<211> 1146

<212> DNA

<213> Neisseria meningitidis

<400> 2395

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gtcatcggca gggtgggacc ggaggcggcc atacccgatt taagcggaga gagctgcgag 180
gtagtgatag acgggcaaat cgtgatgacg ggcatcatcg gcagccagcg ccacggcaaa 240
agcaagggca gccgcgagtt gagcttgagc gggcgtgatt tggcgggttt tttggtggat 300
tgctccgcgc cgcagctcaa tgtaaagggc atgacgggat tggatgcagc caaaaagctg 360
gccgcgccgt ggccgcagat taaagcgggt gtgcttaagg ccgaaaacaa ccccgctttg 420
ggcaaaatcg acatcgagcc gggcgaaacc gtatggcagg cattaacca tattgccaac 480
tcggtcgggc tgcattccgtg gctggagccg gacggcacgt tgggtggggg cgggtgcggat 540
tacagcagcc cgcgggtggc gacattgtgt tggagccgca ccgacagccg ctgcaatatc 600
gagcgcattg acattgagtg ggataccgac aaccgctttt ccgaggttac ttttttggcg 660
caatcgcaag gccgcagcgg cgacagcgcc aaacacgatt taaagtgggt gtacaaagac 720
ccgacgatga cgctgcaccg ccctaaaacg gtggtggtgt ccgatgccga caatttggcc 780

gcattgcaaa agcaggctaa aaagcagctg gccgactggc ggctggaggg atttacactc 840
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<210> 2396

<211> 381

<212> PRT

<213> Neisseria meningitidis

<400> 2396

Met Gln Asn Asn Ser Tyr Gly Tyr Ala Val Ser Val Arg Val Gly Gly  
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Lys Glu His Arg His Trp Glu Arg Tyr Asp Ile Asp Ser Asp Phe Leu  
20 25 30

Ile Pro Ala Asp Ser Phe Asp Phe Val Ile Gly Arg Leu Gly Pro Glu  
35 40 45

Ala Ala Ile Pro Asp Leu Ser Gly Glu Ser Cys Glu Val Val Ile Asp  
50 55 60

Gly Gln Ile Val Met Thr Gly Ile Ile Gly Ser Gln Arg His Gly Lys  
65 70 75 80

Ser Lys Gly Ser Arg Glu Leu Ser Leu Ser Gly Arg Asp Leu Ala Gly  
85 90 95

Phe Leu Val Asp Cys Ser Ala Pro Gln Leu Asn Val Lys Gly Met Thr  
100 105 110

Val Leu Asp Ala Ala Lys Lys Leu Ala Ala Pro Trp Pro Gln Ile Lys  
115 120 125

Ala Val Val Leu Lys Ala Glu Asn Asn Pro Ala Leu Gly Lys Ile Asp  
130 135 140

Ile Glu Pro Gly Glu Thr Val Trp Gln Ala Leu Thr His Ile Ala Asn  
145 150 155 160

Ser Val Gly Leu His Pro Trp Leu Glu Pro Asp Gly Thr Leu Val Val  
165 170 175

Gly Gly Ala Asp Tyr Ser Ser Pro Pro Val Ala Thr Leu Cys Trp Ser  
180 185 190

Arg Thr Asp Ser Arg Cys Asn Ile Glu Arg Met Asp Ile Glu Trp Asp  
195 200 205

Thr Asp Asn Arg Phe Ser Glu Val Thr Phe Leu Ala Gln Ser His Gly  
210 215 220

Arg Ser Gly Asp Ser Ala Lys His Asp Leu Lys Trp Val Tyr Lys Asp  
225 230 235 240

Pro Thr Met Thr Leu His Arg Pro Lys Thr Val Val Val Ser Asp Ala  
245 250 255

Asp Asn Leu Ala Ala Leu Gln Lys Gln Ala Lys Lys Gln Leu Ala Asp  
260 265 270

Trp Arg Leu Glu Gly Phe Thr Leu Thr Ile Thr Val Gly Gly His Lys  
275 280 285

Thr Arg Asp Gly Val Leu Trp Gln Pro Gly Leu Arg Val His Val Ile

290	295	300
Asp Asp Glu His Gly Ile Asp Ala Val Phe Phe Leu Met Gly Arg Arg		
305	310	315 320
Phe Met Leu Ser Arg Met Asp Gly Thr Gln Thr Glu Leu Arg Leu Lys		
	325	330 335
Glu Asp Gly Ile Trp Thr Pro Asp Ala Tyr Pro Lys Lys Ala Glu Ala		
	340	345 350
Ala Arg Lys Arg Lys Gly Lys Arg Lys Gly Val Ser His Lys Gly Lys		
	355	360 365
Lys Gly Gly Lys Lys Gln Ala Glu Thr Ala Val Phe Glu		
	370	375 380

<210> 2397  
 <211> 1146  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2397

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gtcatcggca	ggttggggcc	ggaggcggcc	atacccgatt	taagcggaga	gagctgcgag	180
gtagtgatag	acggggcaaat	cgtgatgacg	ggcatcatcg	gcagccagcg	ccacggcaaa	240
agcaagggcg	gccgcgagtt	gagcttgagc	gggcgtgatt	tggccggttt	tttgggtggat	300
tgctccgcgc	cgcagctcaa	tgtaaagggc	atgacgggat	tggatgcagc	caaaaagctg	360
gccgcgccgt	ggccgcagat	taaagcgggtg	gtgcttaagg	tcgaaaacaa	ccccgccttg	420
gacaaaatcg	acatcgagcc	gggcgaaacc	gtatggcagg	cattaaccca	tattgccaac	480
tcggtcgggc	tgcatccgtg	gctggagccg	gacggcacgt	tggtgggtggg	cggtgtggat	540
tacagcagcc	cgccggtggc	gacattgtgt	tggagccgca	ccgacagccg	ccgcaatatc	600
gagcgcattg	acattgagtg	ggataccgac	aaccgccttt	ctgaggttac	ttttttggcg	660
caatcgacg	gccgcagcgg	cgacagcgcc	aaacacgatt	taaagtgggt	gtacaaagac	720
ccgacgatga	cgctgcaccg	ccctaaaacg	gtggtggtgt	ccgatgccga	caatttgccc	780
gcattgcaaa	agcaggctaa	aaagcagctg	gccgactggc	ggctggaggg	atttacctc	840
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gtgcatgtga	tcgacgacga	gcacggtatc	gatgcggtgt	tttttctgat	ggggcgggcg	960
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gaatga						1146

<210> 2398  
 <211> 381  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2398

Met	Gln	Asn	Asn	Ser	Tyr	Gly	Tyr	Ala	Val	Ser	Val	Arg	Val	Gly	Gly
1				5				10						15	
Lys	Glu	His	Arg	His	Trp	Glu	Arg	Tyr	Asp	Ile	Asp	Ser	Asp	Phe	Leu
				20				25						30	



Ile Pro Ala Asp Ser Phe Asp Phe Val Ile Gly Arg Leu Gly Pro Glu  
 35 40 45  
 Ala Ala Ile Pro Asp Leu Ser Gly Glu Ser Cys Glu Val Val Ile Asp  
 50 55 60  
 Gly Gln Ile Val Met Thr Gly Ile Ile Gly Ser Gln Arg His Gly Lys  
 65 70 75 80  
 Ser Lys Gly Gly Arg Glu Leu Ser Leu Ser Gly Arg Asp Leu Ala Gly  
 85 90 95  
 Phe Leu Val Asp Cys Ser Ala Pro Gln Leu Asn Val Lys Gly Met Thr  
 100 105 110  
 Val Leu Asp Ala Ala Lys Lys Leu Ala Ala Pro Trp Pro Gln Ile Lys  
 115 120 125  
 Ala Val Val Leu Lys Val Glu Asn Asn Pro Ala Leu Asp Lys Ile Asp  
 130 135 140  
 Ile Glu Pro Gly Glu Thr Val Trp Gln Ala Leu Thr His Ile Ala Asn  
 145 150 155 160  
 Ser Val Gly Leu His Pro Trp Leu Glu Pro Asp Gly Thr Leu Val Val  
 165 170 175  
 Gly Gly Val Asp Tyr Ser Ser Pro Pro Val Ala Thr Leu Cys Trp Ser  
 180 185 190  
 Arg Thr Asp Ser Arg Arg Asn Ile Glu Arg Met Asp Ile Glu Trp Asp  
 195 200 205  
 Thr Asp Asn Arg Phe Ser Glu Val Thr Phe Leu Ala Gln Ser His Gly  
 210 215 220  
 Arg Ser Gly Asp Ser Ala Lys His Asp Leu Lys Trp Val Tyr Lys Asp  
 225 230 235 240  
 Pro Thr Met Thr Leu His Arg Pro Lys Thr Val Val Val Ser Asp Ala  
 245 250 255  
 Asp Asn Leu Ala Ala Leu Gln Lys Gln Ala Lys Lys Gln Leu Ala Asp  
 260 265 270  
 Trp Arg Leu Glu Gly Phe Thr Leu Thr Ile Thr Val Gly Gly His Lys  
 275 280 285  
 Thr Arg Asp Gly Val Leu Trp Gln Pro Gly Gln Arg Val His Val Ile  
 290 295 300  
 Asp Asp Glu His Gly Ile Asp Ala Val Phe Phe Leu Met Gly Arg Arg  
 305 310 315 320  
 Phe Met Leu Ser Arg Met Asp Gly Thr Gln Thr Glu Leu Arg Leu Lys  
 325 330 335

Glu Asp Gly Ile Trp Thr Pro Asp Ala Tyr Pro Lys Lys Ala Glu Ala  
340 345 350

Ala Arg Lys Arg Lys Gly Lys Arg Lys Gly Val Ser His Lys Gly Lys  
355 360 365

Lys Gly Gly Lys Lys Gln Ala Glu Thr Ala Val Phe Glu  
370 375 380

<210> 2399

<211> 561

<212> DNA

<213> Neisseria meningitidis

<400> 2399

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gctcaaagcg ttgccgatgc cgtcgacccg cgcagcgcgc gccaaatgct ggccgattgg 180  
gagcgcgtat taggtttgga cggtagcggc aaaaaccgcc agcaccgtgt gttggccgctc 240  
atggccaagc taaacgaaac aggcggcctg agtattcctt attttgtgcg tttggccgag 300  
gcggcgggct atcaaatcca aatcgacgaa ccgcagccgt tccgcgccgc tgtaaaccgc 360  
gccggcgacc gtcttgccgc gcaggaaatc atgtgggtgt ggcacgttaa cgtgcgcggc 420  
ggcaacaacc gcattaccgc attccgcgcc ggtatctcgc cggcgggcga caggctgacc 480  
gattacagcg atgccgtgat cgagagcctg ttcaaccgcc tcaagcccgc ccacaccgct 540  
atccgattta cctaccgcta a 561

<210> 2400

<211> 186

<212> PRT

<213> Neisseria meningitidis

<400> 2400

Met Ser Tyr Gln Asp Ile Leu Arg Gly Leu Leu Pro Pro Val Ser Tyr  
1 5 10 15

Ala Arg Asn Ala Pro Arg Val Arg Ala Gln Ala Glu Ile Asp Gly Ala  
20 25 30

Ala Leu Asp Ala Val Ala Glu Ser Ala Gln Ser Val Ala Asp Ala Val  
35 40 45

Asp Pro Arg Ser Ala Gly Gln Met Leu Ala Asp Trp Glu Arg Val Leu  
50 55 60

Gly Leu Asp Gly Thr Gly Lys Asn Arg Gln His Arg Val Leu Ala Val  
65 70 75 80

Met Ala Lys Leu Asn Glu Thr Gly Gly Leu Ser Ile Pro Tyr Phe Val  
85 90 95

Arg Leu Ala Glu Ala Ala Gly Tyr Gln Ile Gln Ile Asp Glu Pro Gln  
100 105 110

Pro Phe Arg Ala Gly Val Asn Arg Ala Gly Asp Arg Leu Ala Pro Gln

115	120	125
Glu Ile Met Trp Val Trp His Val Asn Val Arg Gly Gly Asn Asn Arg		
130	135	140
Ile Thr Arg Phe Arg Ala Gly Ile Ser Ala Ala Gly Asp Arg Leu Thr		
145	150	155
Asp Tyr Ser Asp Ala Val Ile Glu Ser Leu Phe Asn Arg Leu Lys Pro		
	165	170
		175
Ala His Thr Ala Ile Arg Phe Thr Tyr Arg		
	180	185

<210> 2401  
 <211> 561  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2401  
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 gctcaaagcg ttgccgatgc cgtcgacccg agcagcgccg gccaaatgct ggcgattgg 180  
 gagcgcgtat taggtttgga cggtagcggc aaaaaccgcc agcgcgctgt gttggccgctc 240  
 atggccaagc taaacgaaac aggcggcttg agtattcctt attttgtgcg tttggccgag 300  
 gcggcgggct atcaaatacca aatcgacgaa ccgcagccgt tccgcgccgg tgtaaaccgc 360  
 gccggcgacc gtcttgccgc gcaggaaatc atgtgggtgt ggcacgttaa cgtgcgcggc 420  
 ggcaacaacc gcattaccgc attccgcgcc ggtatctcgg cggcggggcg caggctgacc 480  
 gattacagcg atgccgtgat cgagagcctg ttcaaccgcc tcaagcccg ccacaccgct 540  
 atccgattta cctaccgata a 561

<210> 2402  
 <211> 186  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2402  
 Met Ser Tyr Gln Asp Ile Leu Arg Gly Leu Leu Pro Pro Val Ser Tyr  
 1 5 10 15  
 Ala Arg Asn Ala Pro Arg Val Arg Ala Gln Ala Glu Ile Asp Gly Ala  
 20 25 30  
 Ala Leu Asp Ala Val Ala Glu Ser Ala Gln Ser Val Ala Asp Ala Val  
 35 40 45  
 Asp Pro Ser Ser Ala Gly Gln Met Leu Ala Asp Trp Glu Arg Val Leu  
 50 55 60  
 Gly Leu Asp Gly Thr Gly Lys Asn Arg Gln Arg Arg Val Leu Ala Val  
 65 70 75 80  
 Met Ala Lys Leu Asn Glu Thr Gly Gly Leu Ser Ile Pro Tyr Phe Val  
 85 90 95

Arg Leu Ala Glu Ala Ala Gly Tyr Gln Ile Gln Ile Asp Glu Pro Gln  
 100 105 110  
 Pro Phe Arg Ala Gly Val Asn Arg Ala Gly Asp Arg Leu Ala Pro Gln  
 115 120 125  
 Glu Ile Met Trp Val Trp His Val Asn Val Arg Gly Gly Asn Asn Arg  
 130 135 140  
 Ile Thr Arg Phe Arg Ala Gly Ile Ser Ala Ala Gly Asp Arg Leu Thr  
 145 150 155 160  
 Asp Tyr Ser Asp Ala Val Ile Glu Ser Leu Phe Asn Arg Leu Lys Pro  
 165 170 175  
 Ala His Thr Ala Ile Arg Phe Thr Tyr Arg  
 180 185

<210> 2403  
 <211> 417  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2403  
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 aacgggatcg aaaacogcta cctgctgatg cgccgactgt ccgaaaccat gcacacggcg 120  
 gtcaagctca atttccgcta cgcaggccgt ccgaaatggg ttgggctaaa ataccgcgac 180  
 ggcaagccgc tttcggattc gggtcgtctg aaagacagtt tttccacact gtcagacaac 240  
 gatacagccc ttgtcggtag gaatatcgtc tatgccgcca tccacaactt cggcggtagt 300  
 gcggggcgca accgcaaagt tcggattccg caacgggaat ttttgacgct gacggacgac 360  
 gacaaacagg ctttgatgga cgatgtgcag gattatcttt cgggtctgat accgtga 417

<210> 2404  
 <211> 138  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2404  
 Met Ile Asp Val Lys Ile Asp Asn Ile Phe Val Val Leu Asn Gln Ile  
 1 5 10 15  
 Glu Arg Leu Gly Asn Gly Ile Glu Asn Arg Tyr Leu Leu Met Arg Arg  
 20 25 30  
 Leu Ser Glu Thr Met His Thr Ala Val Lys Leu Asn Phe Arg Tyr Ala  
 35 40 45  
 Gly Arg Pro Lys Trp Val Gly Leu Lys Tyr Arg Asp Gly Lys Pro Leu  
 50 55 60  
 Ser Asp Ser Gly Arg Leu Lys Asp Ser Phe Ser Thr Leu Ser Asp Asn  
 65 70 75 80  
 Asp Thr Ala Leu Val Gly Thr Asn Ile Val Tyr Ala Ala Ile His Asn  
 85 90 95

Phe Gly Gly Met Ala Gly Arg Asn Arg Lys Val Arg Ile Pro Gln Arg  
100 105 110

Glu Phe Leu Thr Leu Thr Asp Asp Asp Lys Gln Ala Leu Met Asp Asp  
115 120 125

Val Gln Asp Tyr Phe Ser Gly Leu Ile Pro  
130 135

<210> 2405

<211> 417

<212> DNA

<213> Neisseria meningitidis

<400> 2405

atgattgatg tcaaaataga caatatcttt gtcgtcctaa accaaatcga gcggtctggc 60  
aacgggatcg aaaaccgcta cctgctgatg cgccgactgt ccgaaaccat gcacacggcg 120  
gtcaagctca atttccgcta cgcaggccgt ccgaaatggt tggggctaaa ataccgacgac 180  
ggcaagccgc tttcggattc gggtcgtctg aaagacagtt tttccacact gtcagacaac 240  
gatacagccc ttgtcggtag gaatatcgtc tatgccgcca tccacaactt cggcggtagt 300  
gcggggcgca accgcaaagt tcggattccg caacgggaat ttttgacgct gacggacgac 360  
gacaaacagg ctttgatgga cgatgtgcag gattatcttt cgggtctgat accgtga 417

<210> 2406

<211> 138

<212> PRT

<213> Neisseria meningitidis

<400> 2406

Met Ile Asp Val Lys Ile Asp Asn Ile Phe Val Val Leu Asn Gln Ile  
1 5 10 15

Glu Arg Leu Gly Asn Gly Ile Glu Asn Arg Tyr Leu Leu Met Arg Arg  
20 25 30

Leu Ser Glu Thr Met His Thr Ala Val Lys Leu Asn Phe Arg Tyr Ala  
35 40 45

Gly Arg Pro Lys Trp Leu Gly Leu Lys Tyr Arg Asp Gly Lys Pro Leu  
50 55 60

Ser Asp Ser Gly Arg Leu Lys Asp Ser Phe Ser Thr Leu Ser Asp Asn  
65 70 75 80

Asp Thr Ala Leu Val Gly Thr Asn Ile Val Tyr Ala Ala Ile His Asn  
85 90 95

Phe Gly Gly Met Ala Gly Arg Asn Arg Lys Val Arg Ile Pro Gln Arg  
100 105 110

Glu Phe Leu Thr Leu Thr Asp Asp Asp Lys Gln Ala Leu Met Asp Asp  
115 120 125

Val Gln Asp Tyr Phe Ser Gly Leu Ile Pro

130

135

&lt;210&gt; 2407

&lt;211&gt; 339

&lt;212&gt; DNA

<213> *Neisseria gonorrhoeae*

&lt;400&gt; 2407

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atgaacaaaa atattgctgc cgcactcgcc ggtgctttat cctgtctctt ggccgccggc 60
gccgttgccg cccacaaacc ggcaagcaac gcaacaggcg ttcaaaaatc cgccaaggc 120
tcttgccggc catccaaatc tgccgaaggt tcgtgcggcg catccaaatc tgccgaaggt 180
tcgtgcggcg cggctgcttc taaagcaggc gaaggcaaat gcggcgaggg caaatgcggt 240
gcaactgtaa aaaaagccca caaacacacc aaagcatcta aagccaaagc caaatctgcc 300
gaaggcaaat gcggcgaagg caaatgcggt tctaaataa 339

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&lt;210&gt; 2408

&lt;211&gt; 112

&lt;212&gt; PRT

<213> *Neisseria gonorrhoeae*

&lt;400&gt; 2408

```

Met Asn Lys Asn Ile Ala Ala Ala Leu Ala Gly Ala Leu Ser Leu Ser
  1           5           10           15

Leu Ala Ala Gly Ala Val Ala Ala His Lys Pro Ala Ser Asn Ala Thr
          20           25           30

Gly Val Gln Lys Ser Ala Gln Gly Ser Cys Gly Ala Ser Lys Ser Ala
          35           40           45

Glu Gly Ser Cys Gly Ala Ser Lys Ser Ala Glu Gly Ser Cys Gly Ala
          50           55           60

Ala Ala Ser Lys Ala Gly Glu Gly Lys Cys Gly Glu Gly Lys Cys Gly
          65           70           75           80

Ala Thr Val Lys Lys Ala His Lys His Thr Lys Ala Ser Lys Ala Lys
          85           90           95

Ala Lys Ser Ala Glu Gly Lys Cys Gly Glu Gly Lys Cys Gly Ser Lys
          100          105          110

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&lt;210&gt; 2409

&lt;211&gt; 309

&lt;212&gt; DNA

<213> *Neisseria meningitidis*

&lt;400&gt; 2409

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atgaacaaaa acattgctgc cgctctcgcc ggtgctttat cctgtctttt ggccgccggg 60
gcagttgctg ccaacaaacc ggcaagcaac gcaacaggcg ttcataaatc cgcccatggc 120
tcttgccggc cgtccaaatc tgccgaaggt tcgtgcggcg cggctgggtc taaagcaggc 180

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gaaggcaaat gcggcgaggg caaatgcggt gcgaccgtaa aaaaaaccca caaacacacc 240  
aaagcatcta aagccaaggc caaatctgcc gaaggcaaat gcggcgaagg caaatgcggt 300  
tctaaataa 309

<210> 2410  
<211> 102  
<212> PRT  
<213> Neisseria meningitidis

<400> 2410  
Met Asn Lys Asn Ile Ala Ala Ala Leu Ala Gly Ala Leu Ser Leu Ser  
1 5 10 15  
Leu Ala Ala Gly Ala Val Ala Ala Asn Lys Pro Ala Ser Asn Ala Thr  
20 25 30  
Gly Val His Lys Ser Ala His Gly Ser Cys Gly Ala Ser Lys Ser Ala  
35 40 45  
Glu Gly Ser Cys Gly Ala Ala Gly Ser Lys Ala Gly Glu Gly Lys Cys  
50 55 60  
Gly Glu Gly Lys Cys Gly Ala Thr Val Lys Lys Thr His Lys His Thr  
65 70 75 80  
Lys Ala Ser Lys Ala Lys Ala Lys Ser Ala Glu Gly Lys Cys Gly Glu  
85 90 95  
Gly Lys Cys Gly Ser Lys  
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<210> 2411  
<211> 309  
<212> DNA  
<213> Neisseria meningitidis

<400> 2411  
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gcagttgctg ccaacaaacc ggcaagcaac gcaacaggcg ttcataaatc cgcccatggc 120  
tcttgccggc cgcccaaatac tgccgaaggt tcgtgcggcg cggctggttc taaagcaggc 180  
gaaggcaaat gcggcgaggg caaatgcggt gcgaccgtaa aaaaaaccca caaacacacc 240  
aaagcatcta aagccaaggc caaatctgcc gaaggcaaat gcggcgaagg caaatgcggt 300  
tctaaataa 309

<210> 2412  
<211> 102  
<212> PRT  
<213> Neisseria meningitidis

<400> 2412  
Met Asn Lys Asn Ile Ala Ala Ala Leu Ala Gly Ala Leu Ser Leu Ser  
1 5 10 15  
Leu Ala Ala Gly Ala Val Ala Ala Asn Lys Pro Ala Ser Asn Ala Thr

20                      25                      30  
 Gly Val His Lys Ser Ala His Gly Ser Cys Gly Ala Ser Lys Ser Ala  
                     35                      40                      45  
 Glu Gly Ser Cys Gly Ala Ala Gly Ser Lys Ala Gly Glu Gly Lys Cys  
                     50                      55                      60  
 Gly Glu Gly Lys Cys Gly Ala Thr Val Lys Lys Thr His Lys His Thr  
                     65                      70                      75                      80  
 Lys Ala Ser Lys Ala Lys Ala Lys Ser Ala Glu Gly Lys Cys Gly Glu  
                     85                      90                      95  
 Gly Lys Cys Gly Ser Lys  
                     100

<210> 2413  
 <211> 1422  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 2413  
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 gtcacatcatc tgccgctgct gtcgtggtat ttccccgcgc acgacatcgg gcgcacgtg 120  
 ctgatgcaga cggcggcggg actgacggtg tcggtattgt gcctcgggct ggatcaggca 180  
 tacgtccgcg aataactatgc cgcgcgcgac aaagacactt tgttcaaaac cctgttcctg 240  
 ccgcccgtgc tgttttccgc cgcgatagcc gccctgctgc ttccccgccc gtccctgccc 300  
 tctgaaatcc tgttttcgct cgacgatgcc gccgcggcga tcgggctggt gctgtttgaa 360  
 ctgagcttcc tgcccatccg ctttctctta ctggttttgc gtatggaagg gcgcgccctt 420  
 gccttttctg ccgcgcaact cgtgcccaaa ctcgccattc tgcgtgctgt gccgctgacg 480  
 gtcgggctgc tgcaactttcc ggcgaacacc tccgtcctga ccgcggttta cgcgctggca 540  
 aaccttgccg ccgcgcgcct tttgctggtt caaaaccgat gccgtctgaa ggccgtcccg 600  
 cgcgcgcgcg ttctgcgcgc cgtcctgcac cgggggctgc gctacggcat accgctcgca 660  
 ctgagcagcc ttgcctattg ggggctggca tccgccgacc gtttgttcct gaaaaaatat 720  
 gcgggcctgg aacagctcgg cgtttattcg atgggtattt cgttcggcgg ggcggcatta 780  
 ttgctccaaa gcacttttcc aacggctctg acaccgtata ttttcctgtc aatcgaagaa 840  
 aacgccacgc ccgcccgcct ctcggaacg gcagaatccg ccgcgcgcct gcttgccctc 900  
 gccctctgcc tgaccggaat tttctcgcgc ctgcctccc tctgctgccc ggaaaactac 960  
 gccgcgcgtc ggtttacogt cgtatcgtgt atgctgccc cgtgttttta cacgctgacc 1020  
 gaaatcagcg gcacgcggtt gaacgtcgtc cgaaaacgc gtccgatcgc gcttgccacc 1080  
 ttgggcgcgc tggcgcaaaa cctgctgctg ctggggcttg ccgtaccgtc cggcggcacg 1140  
 cgcggcgcgg cggttgccctg tgccgectca ttctggttgt tttttgtttt caagacagaa 1200  
 agctcctgcc gcctgtggca gccgctcaaa cgctgcccgc tttatatgca cacattgttc 1260  
 tgccctggcct cctcggcggc ctacacctgc ttcggcacac cggcaaaacta cccctgttt 1320  
 gccgcgtat gggcggcata tctggcaggc tgcacctgc gccaccgaa aaatttgac 1380  
 aaactgtttc attatttgaa aaaacaaggt ttccattat ga 1422

<210> 2414  
 <211> 473  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 2414  
 Met Asp Thr Lys Glu Ile Leu Gly Tyr Ala Ala Gly Ser Ile Gly Ser



1	5	10	15
Ala Val Leu Ala Val Ile Ile Leu Pro Leu Leu Ser Trp Tyr Phe Pro	20	25	30
Ala Asp Asp Ile Gly Arg Ile Val Leu Met Gln Thr Ala Ala Gly Leu	35	40	45
Thr Val Ser Val Leu Cys Leu Gly Leu Asp Gln Ala Tyr Val Arg Glu	50	55	60
Tyr Tyr Ala Ala Ala Asp Lys Asp Thr Leu Phe Lys Thr Leu Phe Leu	65	70	75
Pro Pro Leu Leu Phe Ser Ala Ala Ile Ala Ala Leu Leu Leu Ser Arg	85	90	95
Pro Ser Leu Pro Ser Glu Ile Leu Phe Ser Leu Asp Asp Ala Ala Ala	100	105	110
Gly Ile Gly Leu Val Leu Phe Glu Leu Ser Phe Leu Pro Ile Arg Phe	115	120	125
Leu Leu Leu Val Leu Arg Met Glu Gly Arg Ala Leu Ala Phe Ser Ser	130	135	140
Ala Gln Leu Val Pro Lys Leu Ala Ile Leu Leu Leu Leu Pro Leu Thr	145	150	155
Val Gly Leu Leu His Phe Pro Ala Asn Thr Ser Val Leu Thr Ala Val	165	170	175
Tyr Ala Leu Ala Asn Leu Ala Ala Ala Phe Leu Leu Phe Gln Asn	180	185	190
Arg Cys Arg Leu Lys Ala Val Arg Arg Ala Pro Phe Ser Pro Ala Val	195	200	205
Leu His Arg Gly Leu Arg Tyr Gly Ile Pro Leu Ala Leu Ser Ser Leu	210	215	220
Ala Tyr Trp Gly Leu Ala Ser Ala Asp Arg Leu Phe Leu Lys Lys Tyr	225	230	235
Ala Gly Leu Glu Gln Leu Gly Val Tyr Ser Met Gly Ile Ser Phe Gly	245	250	255
Gly Ala Ala Leu Leu Leu Gln Ser Ile Phe Ser Thr Val Trp Thr Pro	260	265	270
Tyr Ile Phe Arg Ala Ile Glu Glu Asn Ala Thr Pro Ala Arg Leu Ser	275	280	285
Ala Thr Ala Glu Ser Ala Ala Ala Leu Leu Ala Ser Ala Leu Cys Leu	290	295	300

Thr Gly Ile Phe Ser Pro Leu Ala Ser Leu Leu Leu Pro Glu Asn Tyr  
 305 310 315 320  
 Ala Ala Val Arg Phe Thr Val Val Ser Cys Met Leu Pro Pro Leu Phe  
 325 330 335  
 Tyr Thr Leu Thr Glu Ile Ser Gly Ile Gly Leu Asn Val Val Arg Lys  
 340 345 350  
 Thr Arg Pro Ile Ala Leu Ala Thr Leu Gly Ala Leu Ala Ala Asn Leu  
 355 360 365  
 Leu Leu Leu Gly Leu Ala Val Pro Ser Gly Gly Thr Arg Gly Ala Ala  
 370 375 380  
 Val Ala Cys Ala Ala Ser Phe Trp Leu Phe Phe Val Phe Lys Thr Glu  
 385 390 395 400  
 Ser Ser Cys Arg Leu Trp Gln Pro Leu Lys Arg Leu Pro Leu Tyr Met  
 405 410 415  
 His Thr Leu Phe Cys Leu Ala Ser Ser Ala Ala Tyr Thr Cys Phe Gly  
 420 425 430  
 Thr Pro Ala Asn Tyr Pro Leu Phe Ala Gly Val Trp Ala Ala Tyr Leu  
 435 440 445  
 Ala Gly Cys Ile Leu Arg His Arg Lys Asn Leu His Lys Leu Phe His  
 450 455 460  
 Tyr Leu Lys Lys Gln Gly Phe Pro Leu  
 465 470

<210> 2415

<211> 1422

<212> DNA

<213> Neisseria meningitidis

<400> 2415

atggacacaa aagaaatcct cggctacgcg gcaggctcga tcggcagcgc ggtttttagcc 60  
 gtcacatccc tgccgctgct gtcgtggtat ttccccgcgc acgacatcgg gcgcatcgtg 120  
 ctgatgcaga cggcgggcgg gctgacggtg tcggtgttgt gcctcgggct ggatcaggca 180  
 tacgtccgcg aatactatgc caccgccgac aaagacacct tgttcaaaac cctgttcctg 240  
 ccgccgctgc tgtctgccgc cgcgatagcc gccctgctgc tttcccgccc gtccctgccg 300  
 tctgaaatcc tgttttcact cgacgatgcc gccgccggca tcgggctggt gctgtttgaa 360  
 ctgagcttcc tgcccatccg ctttctctta ctggttttgc gtatggaagg acgcgccctt 420  
 gccttttcgt ccgcgcaact cgtgcccaag ctgccatcc tgctgctgct gccgctgacg 480  
 gtcgggctgc tgcactttcc agcgaacacc gccgtcctga ccgccgttta ccgctgggca 540  
 aaccttgccg ccgccgcctt tttgctgttt caaaaccgat gccgtctgaa ggccgtcccg 600  
 caccgacagt ttctgccgcg cgtcctgcac cgggggctgc gctacggcat accgatcgca 660  
 ctgagcagca tcgcctattg ggggctggca tccgccgacc gtttgttcct gaaaaaatat 720  
 gccggcctgg aacagctcgg cgtttattcg atgggtatct cgttcggcgg gccggcatta 780  
 ttgttccaaa gcatcttttc aacggctctg acaccgtata tttccgcgc aatcgaagaa 840  
 aacgccccgc ccgccgcct ctcggcaacg gcagaatccg ccgccgcct gcttgccctc 900  
 gccctctgcc tgaccggcat tttctcgccc cttgcctccc tctgctgcc ggaaaactac 960  
 gccgccgtcc ggtttatcgt cgtatcgtgt atgctgccgc cgctgttttg cacgctggcg 1020

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gaaatcagcg gcatcggttt gaacgtcgtc cgcaaaacgc gcccgatcgc gctcgccacc 1080
ttggggcgcgc tggcggcaaa cctgctgctg ctggggcttg ccgtgccgctc cggcggcgcg 1140
cgcgggcgcgg cggttgcctg tgccgcctca ttctggtgt tttttgcctt caagaccgaa 1200
agctcctgcc gcctgtggca gccgtcaaa cgctgccgc tttatctgca cacattgttc 1260
tgcttgacct cctcggcggc ctacacctgc ttccggcagc cggcaaacta tcccctgttt 1320
gccggcgat gggcggcata tctggcaggc tgcctcctgc gccaccgaa agatttgcac 1380
aaactgtttc attatttgaa aaaacaaggt ttcccattat ga 1422

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<210> 2416

<211> 473

<212> PRT

<213> Neisseria meningitidis

<400> 2416

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Met Asp Thr Lys Glu Ile Leu Gly Tyr Ala Ala Gly Ser Ile Gly Ser
  1                      5                      10                      15

```

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Ala Val Leu Ala Val Ile Ile Leu Pro Leu Leu Ser Trp Tyr Phe Pro
          20                      25                      30

```

```

Ala Asp Asp Ile Gly Arg Ile Val Leu Met Gln Thr Ala Ala Gly Leu
          35                      40                      45

```

```

Thr Val Ser Val Leu Cys Leu Gly Leu Asp Gln Ala Tyr Val Arg Glu
          50                      55                      60

```

```

Tyr Tyr Ala Thr Ala Asp Lys Asp Thr Leu Phe Lys Thr Leu Phe Leu
          65                      70                      75                      80

```

```

Pro Pro Leu Leu Ser Ala Ala Ala Ile Ala Ala Leu Leu Leu Ser Arg
          85                      90                      95

```

```

Pro Ser Leu Pro Ser Glu Ile Leu Phe Ser Leu Asp Asp Ala Ala Ala
          100                      105                      110

```

```

Gly Ile Gly Leu Val Leu Phe Glu Leu Ser Phe Leu Pro Ile Arg Phe
          115                      120                      125

```

```

Leu Leu Leu Val Leu Arg Met Glu Gly Arg Ala Leu Ala Phe Ser Ser
          130                      135                      140

```

```

Ala Gln Leu Val Pro Lys Leu Ala Ile Leu Leu Leu Leu Pro Leu Thr
          145                      150                      155                      160

```

```

Val Gly Leu Leu His Phe Pro Ala Asn Thr Ala Val Leu Thr Ala Val
          165                      170                      175

```

```

Tyr Ala Leu Ala Asn Leu Ala Ala Ala Ala Phe Leu Leu Phe Gln Asn
          180                      185                      190

```

```

Arg Cys Arg Leu Lys Ala Val Arg His Ala Pro Phe Ser Pro Ala Val
          195                      200                      205

```

```

Leu His Arg Gly Leu Arg Tyr Gly Ile Pro Ile Ala Leu Ser Ser Ile
          210                      215                      220

```

Ala Tyr Trp Gly Leu Ala Ser Ala Asp Arg Leu Phe Leu Lys Lys Tyr  
 225 230 235 240  
 Ala Gly Leu Glu Gln Leu Gly Val Tyr Ser Met Gly Ile Ser Phe Gly  
 245 250 255  
 Gly Ala Ala Leu Leu Phe Gln Ser Ile Phe Ser Thr Val Trp Thr Pro  
 260 265 270  
 Tyr Ile Phe Arg Ala Ile Glu Glu Asn Ala Pro Pro Ala Arg Leu Ser  
 275 280 285  
 Ala Thr Ala Glu Ser Ala Ala Ala Leu Leu Ala Ser Ala Leu Cys Leu  
 290 295 300  
 Thr Gly Ile Phe Ser Pro Leu Ala Ser Leu Leu Leu Pro Glu Asn Tyr  
 305 310 315 320  
 Ala Ala Val Arg Phe Ile Val Val Ser Cys Met Leu Pro Pro Leu Phe  
 325 330 335  
 Cys Thr Leu Ala Glu Ile Ser Gly Ile Gly Leu Asn Val Val Arg Lys  
 340 345 350  
 Thr Arg Pro Ile Ala Leu Ala Thr Leu Gly Ala Leu Ala Ala Asn Leu  
 355 360 365  
 Leu Leu Leu Gly Leu Ala Val Pro Ser Gly Gly Ala Arg Gly Ala Ala  
 370 375 380  
 Val Ala Cys Ala Ala Ser Phe Trp Leu Phe Phe Ala Phe Lys Thr Glu  
 385 390 395 400  
 Ser Ser Cys Arg Leu Trp Gln Pro Leu Lys Arg Leu Pro Leu Tyr Leu  
 405 410 415  
 His Thr Leu Phe Cys Leu Thr Ser Ser Ala Ala Tyr Thr Cys Phe Gly  
 420 425 430  
 Thr Pro Ala Asn Tyr Pro Leu Phe Ala Gly Val Trp Ala Ala Tyr Leu  
 435 440 445  
 Ala Gly Cys Ile Leu Arg His Arg Lys Asp Leu His Lys Leu Phe His  
 450 455 460  
 Tyr Leu Lys Lys Gln Gly Phe Pro Leu  
 465 470

<210> 2417

<211> 1422

<212> DNA

<213> *Neisseria meningitidis*

<400> 2417

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ctgatgcaga cggcgcgagg gctgacggtg tcggtgtgtg gcctcgggct ggatcaggca 180
tacgtccgcg aatactatgc cgcgcgcgac aaagacactt tgttcaaaac cctgttcctg 240
ccgcccgtgc tgtctgcgc cgcgatagcc gccctgctgc tttcccgccc atccctgccg 300
tctgaaatcc tgttttcgct cgacgatgcc gccgcgcgca tcgggctggt gctgtttgaa 360
ctgagcctcc tgcccatccg ctttctctta ctggttttgc gtatggaagg acgcgccctt 420
gccttttcgt ccgcgcaact cgtgtccaag ctcgccatcc tgctgctgct gccgctgacg 480
gtcgggctgc tgcactttcc ggcgaaacacc gccgtcctga ccgcggttta cgcgctggca 540
aaccttgccg ccgcgcgctt tttgctgttt caaaaccgat gccgtctgaa ggccgtccgg 600
cgcgcaccgt tttcatccgc cgtcctgcat cgcggcctgc gctacggcat accgatcgca 660
ctaagcagca tcgcctattg ggggctggca tccgcgcgacc gtttgttcct gaaaaaatat 720
gccggcctag aacagctcgg cgtttattcg atgggtattt cgttcggcgg agcggcatta 780
ttgttccaaa gcatcttttc aacggctctgg acaccgtata tttccgcgc aatcgaagca 840
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gccctctgcc tgaccggcat tttctcgcgc ctcgccctcc tctgctgcc ggaaaactac 960
gccgcgctcc ggtttatcgt cgtatcgtgt atgctgcctc cgctgttttg cacgctggtg 1020
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agctcctgcc gcctgtggca gccgtcaaaa cgctgccgc tttatatgca cacattgttc 1260
tgcttgccct cctcgcggc ctacacctgc ttcggcactc cggcaacta cccctgttt 1320
gccggcgat gggcggtata tctggcaggc tgcatcctgc gccaccgaa agatttgac 1380
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<210> 2418

<211> 473

<212> PRT

<213> *Neisseria meningitidis*

<400> 2418

Met Asp Thr Lys Glu Ile Leu Gly Tyr Ala Ala Gly Ser Ile Gly Ser  
1 5 10 15

Ala Val Leu Ala Val Ile Ile Leu Pro Leu Leu Ser Trp Tyr Phe Pro  
20 25 30

Ala Asp Asp Ile Gly Arg Ile Val Leu Met Gln Thr Ala Ala Gly Leu  
35 40 45

Thr Val Ser Val Leu Cys Leu Gly Leu Asp Gln Ala Tyr Val Arg Glu  
50 55 60

Tyr Tyr Ala Ala Ala Asp Lys Asp Thr Leu Phe Lys Thr Leu Phe Leu  
65 70 75 80

Pro Pro Leu Leu Ser Ala Ala Ala Ile Ala Ala Leu Leu Leu Ser Arg  
85 90 95

Pro Ser Leu Pro Ser Glu Ile Leu Phe Ser Leu Asp Asp Ala Ala Ala  
100 105 110

Gly Ile Gly Leu Val Leu Phe Glu Leu Ser Phe Leu Pro Ile Arg Phe  
115 120 125

Leu Leu Leu Val Leu Arg Met Glu Gly Arg Ala Leu Ala Phe Ser Ser

130					135					140					
Ala 145	Gln	Leu	Val	Ser	Lys 150	Leu	Ala	Ile	Leu	Leu 155	Leu	Leu	Pro	Leu	Thr 160
Val	Gly	Leu	Leu	His 165	Phe	Pro	Ala	Asn	Thr 170	Ala	Val	Leu	Thr	Ala 175	Val
Tyr	Ala	Leu	Ala 180	Asn	Leu	Ala	Ala 185	Ala	Ala	Phe	Leu	Leu	Phe 190	Gln	Asn
Arg	Cys	Arg 195	Leu	Lys	Ala	Val	Arg 200	Arg	Ala	Pro	Phe	Ser 205	Ser	Ala	Val
Leu	His 210	Arg	Gly	Leu	Arg	Tyr 215	Gly	Ile	Pro	Ile	Ala 220	Leu	Ser	Ser	Ile
Ala 225	Tyr	Trp	Gly	Leu	Ala 230	Ser	Ala	Asp	Arg	Leu 235	Phe	Leu	Lys	Lys	Tyr 240
Ala	Gly	Leu	Glu	Gln 245	Leu	Gly	Val	Tyr	Ser 250	Met	Gly	Ile	Ser	Phe 255	Gly
Gly	Ala	Ala 260	Leu	Leu	Phe	Gln	Ser	Ile 265	Phe	Ser	Thr	Val	Trp 270	Thr	Pro
Tyr	Ile	Phe 275	Arg	Ala	Ile	Glu	Ala 280	Asn	Ala	Pro	Pro	Ala 285	Arg	Leu	Ser
Ala 290	Thr	Ala	Glu	Ser	Ala	Ala 295	Ala	Leu	Leu	Ala	Ser 300	Ala	Leu	Cys	Leu
Thr 305	Gly	Ile	Phe	Ser	Pro 310	Leu	Ala	Ser	Leu	Leu 315	Leu	Pro	Glu	Asn	Tyr 320
Ala	Ala	Val	Arg	Phe 325	Ile	Val	Val	Ser	Cys 330	Met	Leu	Pro	Pro	Leu 335	Phe
Cys	Thr	Leu	Val 340	Glu	Ile	Ser	Gly	Ile 345	Gly	Leu	Asn	Val	Val 350	Arg	Lys
Thr	Arg	Pro 355	Ile	Ala	Leu	Ala	Thr 360	Leu	Gly	Ala	Leu	Ala 365	Ala	Asn	Leu
Leu 370	Leu	Leu	Gly	Leu	Ala	Val 375	Pro	Ser	Gly	Gly	Ala 380	Arg	Gly	Ala	Ala
Val 385	Ala	Cys	Ala	Ala	Ser 390	Phe	Trp	Leu	Phe	Phe 395	Val	Phe	Lys	Thr	Glu 400
Ser	Ser	Cys	Arg	Leu 405	Trp	Gln	Pro	Leu	Lys 410	Arg	Leu	Pro	Leu	Tyr 415	Met
His	Thr	Leu	Phe 420	Cys	Leu	Ala	Ser	Ser 425	Ala	Ala	Tyr	Thr	Cys 430	Phe	Gly
Thr	Pro	Ala	Asn	Tyr	Pro	Leu	Phe	Ala	Gly	Val	Trp	Ala	Val	Tyr	Leu

435

440

445

Ala Gly Cys Ile Leu Arg His Arg Lys Asp Leu His Lys Leu Phe His  
 450 455 460

Tyr Leu Lys Lys Gln Gly Phe Pro Leu  
 465 470

&lt;210&gt; 2419

&lt;211&gt; 1143

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 2419

tcagacggcc ttacgtacc ccgaaacttt atccaccgcc cgcaaagctg gttcaaattgg 60  
 gacaaagaca acgggctgct gctgcgtacc cgcgaaaatc cggaaggcga agcgttgttg 120  
 ccgctgggct gggtcgttca tacccaaaaa tcgcgcagcg tccagcaggc gcgcaacggg 180  
 cttttccgca cgctttcctg gctgtatatg ttcaaact acgccgtcca cgattttgcc 240  
 gagtttttgg agctgtacgg catgcccac cgtatcggca aatacggcgc gggcgcaacc 300  
 aaagaggaaa aaaacaccct gcttcgagcg gtggcggaat tcggtcacaa cgcggcaggc 360  
 atcatgccag aaggatgga aatagagctc cacaacgcgg caaacggtag gacggcaacc 420  
 agcaatccgt ttttgcagat ggccgactgg tgcgaaaaat cggcggcgcg gctgattttg 480  
 gggcaaacgc tgaccagcgg tgcggacgga aaatccagca ccaacgcgct gggcaatatc 540  
 cacaacgagg tacgcgcgga tttgctggtg tcggacgcaa aacagggtggc gcaaaccatc 600  
 acaagccaaa tcatcggacc gttcctgcaa atcaactatc cccatgccga cccaaaccgc 660  
 gtgcggaat ttgaatttga cagcgcgag ccgaaagaca tcgcggtctt tgccgacgct 720  
 atcccgaac tgggtgatgt cggcgtacaa atcccgaat gctgggtgcg cgacaaactg 780  
 gtcattccag atgtgcagga gggtaggct gtgttggtgc ggcaggtagc ggacaatccg 840  
 gtaaacagaa ctgcattggc ggctttatcc gccacacccg taccatctaa ggctacgggc 900  
 aggcacagga aaatattgga cggcgcggtg gatgacgcgc tggttgagcc cgatttcaat 960  
 tctcagctca acccgatggt gcgtcaggcg gttgccgcac ttaatgcttg caacagctac 1020  
 gaggaggcag atgccgcact gaatgcgctt tatccgaatt tggacaacgc gaaactgcgt 1080  
 acctatatgc agcaggcctt gtttatcagc gatattttgg gacaagacca tgcccgcgcc 1140  
 tga 1143

&lt;210&gt; 2420

&lt;211&gt; 380

&lt;212&gt; PRT

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 2420

Ser Asp Gly Leu Tyr Val Pro Arg Asn Phe Ile His Arg Pro Gln Ser  
 1 5 10 15

Trp Phe Lys Trp Asp Lys Asp Asn Gly Leu Leu Leu Arg Thr Arg Glu  
 20 25 30

Asn Pro Glu Gly Glu Ala Leu Trp Pro Leu Gly Trp Val Val His Thr  
 35 40 45

Gln Lys Ser Arg Ser Val Gln Gln Ala Arg Asn Gly Leu Phe Arg Thr  
 50 55 60

Leu Ser Trp Leu Tyr Met Phe Lys His Tyr Ala Val His Asp Phe Ala  
 65 70 75 80

Glu Phe Leu Glu Leu Tyr Gly Met Pro Ile Arg Ile Gly Lys Tyr Gly  
                                   85                                  90                                  95

Ala Gly Ala Thr Lys Glu Glu Lys Asn Thr Leu Leu Arg Ala Val Ala  
                                   100                                  105                                  110

Glu Ile Gly His Asn Ala Ala Gly Ile Met Pro Glu Gly Met Glu Ile  
                                   115                                  120                                  125

Glu Leu His Asn Ala Ala Asn Gly Thr Thr Ala Thr Ser Asn Pro Phe  
                                   130                                  135                                  140

Leu Gln Met Ala Asp Trp Cys Glu Lys Ser Ala Ala Arg Leu Ile Leu  
                                   145                                  150                                  155                                  160

Gly Gln Thr Leu Thr Ser Gly Ala Asp Gly Lys Ser Ser Thr Asn Ala  
                                   165                                  170                                  175

Leu Gly Asn Ile His Asn Glu Val Arg Arg Asp Leu Leu Val Ser Asp  
                                   180                                  185                                  190

Ala Lys Gln Val Ala Gln Thr Ile Thr Ser Gln Ile Ile Gly Pro Phe  
                                   195                                  200                                  205

Leu Gln Ile Asn Tyr Pro His Ala Asp Pro Asn Arg Val Pro Lys Phe  
                                   210                                  215                                  220

Glu Phe Asp Thr Arg Glu Pro Lys Asp Ile Ala Val Phe Ala Asp Ala  
                                   225                                  230                                  235                                  240

Ile Pro Lys Leu Val Asp Val Gly Val Gln Ile Pro Glu Ser Trp Val  
                                   245                                  250                                  255

Arg Asp Lys Leu Val Ile Pro Asp Val Gln Glu Gly Glu Ala Val Leu  
                                   260                                  265                                  270

Val Arg Gln Val Pro Asp Asn Pro Val Asn Arg Thr Ala Leu Ala Ala  
                                   275                                  280                                  285

Leu Ser Ala His Thr Val Pro Ser Lys Ala Thr Gly Arg His Gln Glu  
                                   290                                  295                                  300

Ile Leu Asp Gly Ala Leu Asp Asp Ala Leu Val Glu Pro Asp Phe Asn  
                                   305                                  310                                  315                                  320

Ser Gln Leu Asn Pro Met Val Arg Gln Ala Val Ala Ala Leu Asn Ala  
                                   325                                  330                                  335

Cys Asn Ser Tyr Glu Glu Ala Asp Ala Ala Leu Asn Ala Leu Tyr Pro  
                                   340                                  345                                  350

Asn Leu Asp Asn Ala Lys Leu Arg Thr Tyr Met Gln Gln Ala Leu Phe  
                                   355                                  360                                  365

Ile Ser Asp Ile Leu Gly Gln Asp His Ala Arg Ala  
                                   370                                  375                                  380



<210> 2421  
 <211> 1581  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 2421  
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 aattttatta cgccgcaaaa gatgcgcgcc ctcttcgagg acgcagaaag cgggtgacatc 180  
 cgcgcccaac acgagctttt cgcggaacatt gaggagcgcg acagcgacat cgcggcgaat 240  
 atggggacgc gcaaacgcgc gctgctgacg ctcaactggc gcgtcgcccc gccgcgaaat 300  
 gcgacgcccc aagaagaaaa gctgtccgac caagcctacg aaatgatgga cagcctgcct 360  
 accctcgaag acctgattat ggatttgatg gacgcggtag ggcacggatt ttctgcgttg 420  
 gaggtcgagt gggatatttc agacggcctt tacctacccc gaaactttat ccaccgcccg 480  
 caaagctggg tcaaattgga caaagacaac gggctgctgc tgcgtacccg cgaaaatccg 540  
 gaaggcgaag cgttgtggcc gctgggctgg gtcgttcata cccaaaaatc gcgcagcgtc 600  
 cagcagggcg gcaacgggct tttccgcacg ctttccctggc tgtatatgtt caaacactac 660  
 gccgtccacg attttgccga gtttttgagg ctgtacggca tgcccacccg tatcggcaaa 720  
 tacggcgcgg gcgcaaccaa agaggaaaaa aacaccctgc ttcgagcggg ggcggaaatc 780  
 ggtcacaacg cggcaggcat catgccagaa ggtatggaaa tcgagctgca caacgcggca 840  
 aacggcatga cttccgcccg caatccgttt ttgcagatgg ccgactgggt cgaaaaatcg 900  
 gcggcgcggc tgattttggg gcaaacgcta accagcgggt cggacggaaa atccagcacc 960  
 aacgcgtgg gcaatatcca caacgagata cgccgcgatt tgctgggtgc ggacgcaaaa 1020  
 caggtggcgc aaacctcac aagccaaatc atcggaccgt tcctgcaaat caactatccc 1080  
 catgccgacc caaacccgct gccgaaattt gaatttgaca cgcgcgagcc gaaagacatc 1140  
 gcggtctttg ccgacgctat cccgaaaactg gtggatgtcg gcgtacaaat ccccgaagc 1200  
 tgggtgcgcg acaaactggg cattccagat gtgcaggagg gtgaggctgt gttggtgcgg 1260  
 caggtaccgg acaatccggt aaacagaact gcattggcgg ctttatccgc ccacaccgta 1320  
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 gttgagcccg atttcaattc tcagctcaac ccgatgggtg gtcaggcggg tgccgcactt 1440  
 aatgcttgca acagctacga ggaggcagat gccgcactga atgcgcttta tccgaatttg 1500  
 gacaacgcga aactgcgtac ctatatgcag caggccttgt ttatcagcga tattttggga 1560  
 caagaccatg cccgcgcctg a 1581

<210> 2422  
 <211> 526  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 2422  
 Met Glu Pro Ile Met Ala Lys Lys Asn Asn Lys Thr Lys Ile Gln Lys  
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 Pro Glu Ala Ala Leu Gln Thr Asp Val Ala Gln Ile Thr Ala Thr Gly  
 20 25 30  
 Arg Val Ile Ala Glu His Pro Ser Asn Phe Ile Thr Pro Gln Lys Met  
 35 40 45  
 Arg Ala Leu Phe Glu Asp Ala Glu Ser Gly Asp Ile Arg Ala Gln His  
 50 55 60  
 Glu Leu Phe Ala Asp Ile Glu Glu Arg Asp Ser Asp Ile Ala Ala Asn  
 65 70 75 80

Met Gly Thr Arg Lys Arg Ala Leu Leu Thr Leu Asn Trp Arg Val Ala  
 85 90 95

Pro Pro Arg Asn Ala Thr Pro Glu Glu Glu Lys Leu Ser Asp Gln Ala  
 100 105 110

Tyr Glu Met Met Asp Ser Leu Pro Thr Leu Glu Asp Leu Ile Met Asp  
 115 120 125

Leu Met Asp Ala Val Gly His Gly Phe Ser Ala Leu Glu Val Glu Trp  
 130 135 140

Val Phe Ser Asp Gly Leu Tyr Leu Pro Arg Asn Phe Ile His Arg Pro  
 145 150 155 160

Gln Ser Trp Phe Lys Trp Asp Lys Asp Asn Gly Leu Leu Leu Arg Thr  
 165 170 175

Arg Glu Asn Pro Glu Gly Glu Ala Leu Trp Pro Leu Gly Trp Val Val  
 180 185 190

His Thr Gln Lys Ser Arg Ser Val Gln Gln Ala Arg Asn Gly Leu Phe  
 195 200 205

Arg Thr Leu Ser Trp Leu Tyr Met Phe Lys His Tyr Ala Val His Asp  
 210 215 220

Phe Ala Glu Phe Leu Glu Leu Tyr Gly Met Pro Ile Arg Ile Gly Lys  
 225 230 235 240

Tyr Gly Ala Gly Ala Thr Lys Glu Glu Lys Asn Thr Leu Leu Arg Ala  
 245 250 255

Val Ala Glu Ile Gly His Asn Ala Ala Gly Ile Met Pro Glu Gly Met  
 260 265 270

Glu Ile Glu Leu His Asn Ala Ala Asn Gly Met Thr Ser Ala Gly Asn  
 275 280 285

Pro Phe Leu Gln Met Ala Asp Trp Cys Glu Lys Ser Ala Ala Arg Leu  
 290 295 300

Ile Leu Gly Gln Thr Leu Thr Ser Gly Ala Asp Gly Lys Ser Ser Thr  
 305 310 315 320

Asn Ala Leu Gly Asn Ile His Asn Glu Ile Arg Arg Asp Leu Leu Val  
 325 330 335

Ser Asp Ala Lys Gln Val Ala Gln Thr Ile Thr Ser Gln Ile Ile Gly  
 340 345 350

Pro Phe Leu Gln Ile Asn Tyr Pro His Ala Asp Pro Asn Arg Val Pro  
 355 360 365

Lys Phe Glu Phe Asp Thr Arg Glu Pro Lys Asp Ile Ala Val Phe Ala

370	375	380
Asp Ala Ile Pro Lys Leu Val Asp Val Gly Val Gln Ile Pro Glu Ser		
385	390	395 400
Trp Val Arg Asp Lys Leu Val Ile Pro Asp Val Gln Glu Gly Glu Ala		
	405	410 415
Val Leu Val Arg Gln Val Pro Asp Asn Pro Val Asn Arg Thr Ala Leu		
	420	425 430
Ala Ala Leu Ser Ala His Thr Val Pro Ser Lys Ala Thr Gly Arg His		
	435	440 445
Gln Glu Ile Leu Asp Gly Ala Leu Asp Asp Ala Leu Val Glu Pro Asp		
	450	455 460
Phe Asn Ser Gln Leu Asn Pro Met Val Arg Gln Ala Val Ala Ala Leu		
	465	470 475 480
Asn Ala Cys Asn Ser Tyr Glu Glu Ala Asp Ala Ala Leu Asn Ala Leu		
	485	490 495
Tyr Pro Asn Leu Asp Asn Ala Lys Leu Arg Thr Tyr Met Gln Gln Ala		
	500	505 510
Leu Phe Ile Ser Asp Ile Leu Gly Gln Asp His Ala Arg Ala		
	515	520 525

<210> 2423

<211> 1581

<212> DNA

<213> Neisseria meningitidis

<400> 2423

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aattttatta cgccgcaaaa gatgcgggcc ctcttcgagg acgcagaaag cgcgacatc 180
cgcgcccaac acgagctttt cgcgacatt gaggagcgcg acagcgacat cgcgcaaat 240
atggggacgc gcaaacgcgc gctgctgacg ctcaactggc gcgtcgcccc gccgcgaaat 300
gcgacgcccg aagaagaaaa gctgtccgac caagcctacg aaatgatgga cagcctgcct 360
acctcgaag acctgattat ggatttgatg gacgcggtag ggcacggatt ttctgcgttg 420
gaggtcgagt gggtattttc agacggcctt tacctacccc gaaactttat ccaccgcccg 480
caaagctggt tcaaattgga caaagacaac gggctgctgc tgcgtaccg cgaaaatccg 540
gaaggcgaag cgttgtggcc gctgggctgg gtcgttcata cccaaaaatc gcgcagcgtc 600
cagcaggcgc gcaacgggct tttccgcacg ctttcctggc tgtatatgtt caaacactac 660
gccgtccacg attttgccga gtttttgag ctgtacggca tgcccatccg tatcggcaaa 720
tacggcgcgg gcgcaaccaa agaggaaaaa aacaccctgc ttcgagcggg ggcggaaatc 780
ggtcacaacg cggcaggcat catgccagaa ggtatggaaa tagagctcca caacgcggca 840
aacggtacga cggcaaccag caatccgttt ttgcagatgg ccgactggtg cgaaaaatcg 900
gcggcgcggc tgattttggg gcaaacgctg accagcggtg cggacggaaa atccagcacc 960
aacgcgctgg gcaatatcca caacgaggtg cgccgcgatt tgctggtgtc ggacgcaaaa 1020
caggtggcgc aaaccatcac aagccaaatc atcggaaccg tcctgcaaat caactatccc 1080
catgccgacc caaaccgcgt gccgaaattt gaatttgaca cgcgcgagcc gaaagacatc 1140
gcggtctttg ccgacgctat cccgaaactg gtggatgtcg gcgtacaaat ccccgaaagc 1200
tgggtgcgcg acaaactggt cattccagat gtgcaggagg gtgaggctgt gttggtgcgg 1260

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caggtagccgg acaatccggt aaacagaact gcattggcgg ctttatccgc ccacaccgta 1320
ccatctaagg ctacgggcag gcatcaggaa atattggacg gcgcggttga tgacgcgctg 1380
gttgagcccg atttcaattc tcagctcaac ccgatgggtgc gtcaggcggg tgccgcactt 1440
aatgcttgca acagctacga ggaggcagat gccgcactga atgcgcttta tccgaatttg 1500
gacaacgcga aactgcgtac ctatatgcag caggccttgt ttatcagcga tattttggga 1560
caagaccatg cccgcgcctg a                                     1581

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<210> 2424

<211> 526

<212> PRT

<213> Neisseria meningitidis

<400> 2424

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Met Glu Pro Ile Met Ala Lys Lys Asn Asn Lys Thr Lys Ile Gln Lys
  1              5              10              15

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Pro Glu Ala Ala Leu Gln Thr Asp Val Ala Gln Ile Thr Ala Thr Gly
          20              25              30

```

```

Arg Val Ile Ala Glu His Pro Ser Asn Phe Ile Thr Pro Gln Lys Met
      35              40              45

```

```

Arg Ala Leu Phe Glu Asp Ala Glu Ser Gly Asp Ile Arg Ala Gln His
      50              55              60

```

```

Glu Leu Phe Ala Asp Ile Glu Glu Arg Asp Ser Asp Ile Ala Ala Asn
      65              70              75              80

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```

Met Gly Thr Arg Lys Arg Ala Leu Leu Thr Leu Asn Trp Arg Val Ala
          85              90              95

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```

Pro Pro Arg Asn Ala Thr Pro Glu Glu Glu Lys Leu Ser Asp Gln Ala
      100              105              110

```

```

Tyr Glu Met Met Asp Ser Leu Pro Thr Leu Glu Asp Leu Ile Met Asp
      115              120              125

```

```

Leu Met Asp Ala Val Gly His Gly Phe Ser Ala Leu Glu Val Glu Trp
      130              135              140

```

```

Val Phe Ser Asp Gly Leu Tyr Leu Pro Arg Asn Phe Ile His Arg Pro
      145              150              155              160

```

```

Gln Ser Trp Phe Lys Trp Asp Lys Asp Asn Gly Leu Leu Leu Arg Thr
          165              170              175

```

```

Arg Glu Asn Pro Glu Gly Glu Ala Leu Trp Pro Leu Gly Trp Val Val
          180              185              190

```

```

His Thr Gln Lys Ser Arg Ser Val Gln Gln Ala Arg Asn Gly Leu Phe
          195              200              205

```

```

Arg Thr Leu Ser Trp Leu Tyr Met Phe Lys His Tyr Ala Val His Asp
      210              215              220

```

```

Phe Ala Glu Phe Leu Glu Leu Tyr Gly Met Pro Ile Arg Ile Gly Lys

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225		230		235		240
Tyr Gly Ala Gly Ala Thr Lys Glu Glu Lys Asn Thr Leu Leu Arg Ala						
	245			250		255
Val Ala Glu Ile Gly His Asn Ala Ala Gly Ile Met Pro Glu Gly Met						
	260			265		270
Glu Ile Glu Leu His Asn Ala Ala Asn Gly Thr Thr Ala Thr Ser Asn						
	275			280		285
Pro Phe Leu Gln Met Ala Asp Trp Cys Glu Lys Ser Ala Ala Arg Leu						
	290			295		300
Ile Leu Gly Gln Thr Leu Thr Ser Gly Ala Asp Gly Lys Ser Ser Thr						
305		310		315		320
Asn Ala Leu Gly Asn Ile His Asn Glu Val Arg Arg Asp Leu Leu Val						
	325			330		335
Ser Asp Ala Lys Gln Val Ala Gln Thr Ile Thr Ser Gln Ile Ile Gly						
	340			345		350
Pro Phe Leu Gln Ile Asn Tyr Pro His Ala Asp Pro Asn Arg Val Pro						
	355			360		365
Lys Phe Glu Phe Asp Thr Arg Glu Pro Lys Asp Ile Ala Val Phe Ala						
	370			375		380
Asp Ala Ile Pro Lys Leu Val Asp Val Gly Val Gln Ile Pro Glu Ser						
385		390		395		400
Trp Val Arg Asp Lys Leu Val Ile Pro Asp Val Gln Glu Gly Glu Ala						
	405			410		415
Val Leu Val Arg Gln Val Pro Asp Asn Pro Val Asn Arg Thr Ala Leu						
	420			425		430
Ala Ala Leu Ser Ala His Thr Val Pro Ser Lys Ala Thr Gly Arg His						
	435			440		445
Gln Glu Ile Leu Asp Gly Ala Leu Asp Asp Ala Leu Val Glu Pro Asp						
	450			455		460
Phe Asn Ser Gln Leu Asn Pro Met Val Arg Gln Ala Val Ala Ala Leu						
465		470		475		480
Asn Ala Cys Asn Ser Tyr Glu Glu Ala Asp Ala Ala Leu Asn Ala Leu						
	485			490		495
Tyr Pro Asn Leu Asp Asn Ala Lys Leu Arg Thr Tyr Met Gln Gln Ala						
	500			505		510
Leu Phe Ile Ser Asp Ile Leu Gly Gln Asp His Ala Arg Ala						
	515			520		525

<210> 2425  
 <211> 1581  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 2425  
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 ttgcagacgg acgtgggtca aattacagcg accggtcgag ttatcgccga gcatccatcc 120  
 aattttatta cgccgcaaaa gatgcgcgcc ctcttcgagg acgcagaaag cggtgacatc 180  
 cgcgcccaac acgagctttt cgcggaacatt gaggagcgcg acagcgacat cgcggaat 240  
 atggggacgc gcaaacgcgc gctgctgacg ctcaactggc gcgtcgcccc gccgcgaaat 300  
 gcgacgcccc aagaagaaaa gctgtccgac caagcctacg aaatgatgga cagcctgcct 360  
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 caaagctggt tcaaattggga caaagacaac gggctgctgc tgcgtaccgc cgaaaatccg 540  
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 gccgtccaacg attttgccga gtttttgagg ctgtacggca tgcccacccg tatcggcaaa 720  
 tacggcgcgcg gcgcaaccaa agaggaaaaa aacaccctgc ttcgagcggg ggcggaatc 780  
 ggtcacaacg cggcaggcat catgccagaa ggtatggaaa tcgagctgca caacgcggca 840  
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 gcggcgcgcg tgattttggg gcaaacgcta accagcgggt cggaacgaaa atccagcacc 960  
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 catgccgacc caaacgcgct gccgaaattt gaatttgaca cgcgcgagcc gaaagacatc 1140  
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 aatgcttgca acagctacga ggaggcagat gccgcaactga atgcgcttta tccgaatttg 1500  
 gacaacgcga aactgcgtac ctatatgcag caggccttgt ttatcagcga tattttggga 1560  
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<210> 2426  
 <211> 526  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 2426  
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 1 5 10 15  
 Pro Glu Ala Ala Leu Gln Thr Asp Val Ala Gln Ile Thr Ala Thr Gly  
 20 25 30  
 Arg Val Ile Ala Glu His Pro Ser Asn Phe Ile Thr Pro Gln Lys Met  
 35 40 45  
 Arg Ala Leu Phe Glu Asp Ala Glu Ser Gly Asp Ile Arg Ala Gln His  
 50 55 60  
 Glu Leu Phe Ala Asp Ile Glu Glu Arg Asp Ser Asp Ile Ala Ala Asn  
 65 70 75 80  
 Met Gly Thr Arg Lys Arg Ala Leu Leu Thr Leu Asn Trp Arg Val Ala

[illegible]

385		390		395		400
Trp Val Arg Asp Lys Leu Val Ile Pro Asp Val Gln Glu Gly Glu Ala						
	405			410		415
Val Leu Val Arg Gln Val Pro Asp Asn Pro Val Asn Arg Thr Ala Leu						
	420			425		430
Ala Ala Leu Ser Ala His Thr Val Pro Ser Lys Ala Thr Gly Arg His						
	435			440		445
Gln Glu Ile Leu Asp Gly Ala Leu Asp Asp Ala Leu Val Glu Pro Asp						
	450			455		460
Phe Asn Ser Gln Leu Asn Pro Met Val Arg Gln Ala Val Ala Ala Leu						
465		470		475		480
Asn Ala Cys Asn Ser Tyr Glu Glu Ala Asp Ala Ala Leu Asn Ala Leu						
	485			490		495
Tyr Pro Asn Leu Asp Asn Ala Lys Leu Arg Thr Tyr Met Gln Gln Ala						
	500			505		510
Leu Phe Ile Ser Asp Ile Leu Gly Gln Asp His Ala Arg Ala						
	515			520		525

<210> 2427  
 <211> 2172  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 2427

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gaaatcatgc	tgacacaggc	tgcgtttaac	cgtttgccgc	gcagcggcaa	ggcatcacaa	240
aatgatttgg	cacggggcggc	ggtcgctacg	cgtaaccgaa	ttcgcgagct	gaacgcggaa	300
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gcggtggctg	gtggcgccggc	agcgtatacg	gtgcttaagc	ctgctatgga	caacagaaaag	420
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accggtctga	atthttgccc	aaccaagaat	gaagcgcagg	cggcatatgc	ttttgcactt	660
gcctcagaag	gcagtggcga	ggatacggca	aaactgatta	aaacctgaa	agatggcggc	720
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gcagggatga	atgggtgtcg	cggtttggac	tacctgtct	cactcttaca	atctgcggcg	900
aataaatcgg	gcagtcctgc	cgaagcggcg	actaatgtgc	aaaatctttt	gagtaaaact	960
ctgtcgcctg	acacgatagg	tcgtctgaag	aagatggcaa	atccgaatga	cccgaagaaa	1020
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gtgttgctcc	gtcttgccga	tgccatgcta	gtaaaggata	agcaatacca	agattataag	1140
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tcgctggcaa	tgttgcggga	aagtctgacg	ggaacattgg	tggtatgga	aacctcgttt	1440



```

aaaaagctgg cagcggaata ccctaattgcc actctagccc tgcaagcatt gacgacggcg 1500
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gcgcgggggtg gtgtccctca gtatttggct gctccgtcag cgcagcctac cgataagatg 1920
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gcggcgtatc aggcagcatt ggcgaggat acggctgcag ttacaacagg tttggcacia 2040
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gcgggtcaat aa 2172

```

<210> 2428

<211> 723

<212> PRT

<213> Neisseria meningitidis

<400> 2428

```

Met Ala Asn Gly Asn Met Lys Leu Ser Leu Val Leu Thr Ala Arg Asp
  1             5             10            15

```

```

Asp Gly Ala Arg Arg Leu Leu Ala Asp Thr Gln Arg Gln Leu Asp Arg
      20             25            30

```

```

Thr Ala Lys Ser Arg Ala Gln Leu Glu Arg Gln Ser His Thr Tyr Ala
    35             40            45

```

```

Leu Thr Gly Ile Arg Ser Glu Lys Gln Ile Gln Arg Glu Ile Met Leu
    50             55            60

```

```

Thr Gln Ala Ala Phe Asn Arg Leu Ala Arg Ser Gly Lys Ala Ser Gln
    65             70            75            80

```

```

Asn Asp Leu Ala Arg Ala Ala Val Ala Thr Arg Asn Arg Ile Arg Glu
      85             90            95

```

```

Leu Asn Ala Glu Leu Lys Gln Gly Thr Gly Phe Ala Asp Lys Met Gly
    100            105           110

```

```

Lys Ile Gly Arg Phe Gly Ala Ala Ala Val Ala Gly Gly Ala Ala Ala
    115            120           125

```

```

Tyr Thr Val Leu Lys Pro Ala Met Asp Asn Arg Lys Gln Leu Asp Glu
    130            135           140

```

```

Asn Ile Asn Arg Val Ser Arg Gln Ala Phe Ile Glu Asp Asn Ser Lys
    145            150           155           160

```

```

Ser Ala Ala Trp Ile Ala Thr Glu Gly Ala Gln Gln Ile Lys Asp Leu
    165            170           175

```

```

Ala Leu Glu Leu Val Glu Lys Asn Gly Gly Thr His Asp Lys Ala Leu
    180            185           190

```

Asp	Leu	Ile	Ser	Gly	Met	Met	Thr	Thr	Gly	Leu	Asn	Phe	Ala	Gln	Thr		
	195						200					205					
Lys	Asn	Glu	Ala	Gln	Ala	Ala	Tyr	Ala	Phe	Ala	Leu	Ala	Ser	Glu	Gly		
	210					215					220						
Ser	Gly	Glu	Asp	Thr	Ala	Lys	Leu	Ile	Lys	Thr	Leu	Lys	Asp	Gly	Gly		
225					230					235					240		
Met	Ser	Gly	Lys	Asp	Leu	Gln	Leu	Gly	Leu	Glu	His	Val	Leu	Gln	Ser		
				245					250					255			
Gly	Leu	Asp	Gly	Thr	Phe	Glu	Val	Arg	Asp	Met	Val	Arg	Glu	Leu	Pro		
			260					265					270				
Ser	Leu	Leu	Ser	Ala	Ala	Gln	Gln	Ala	Gly	Met	Asn	Gly	Val	Gly	Gly		
	275						280					285					
Leu	Asp	Tyr	Leu	Leu	Ser	Leu	Leu	Gln	Ser	Ala	Ala	Asn	Lys	Ser	Gly		
	290					295					300						
Ser	Pro	Ala	Glu	Ala	Ala	Thr	Asn	Val	Gln	Asn	Leu	Leu	Ser	Lys	Thr		
305					310					315					320		
Leu	Ser	Pro	Asp	Thr	Ile	Gly	Arg	Leu	Lys	Lys	Met	Ala	Asn	Pro	Asn		
				325					330					335			
Asp	Pro	Lys	Lys	Gly	Val	Asp	Trp	Ile	Gly	Ser	Val	Val	Gln	Gly	Lys		
		340						345					350				
Gln	Asn	Gly	Glu	Asn	Ala	Val	Gln	Val	Leu	Ser	Arg	Leu	Ala	Asp	Ala		
		355					360					365					
Met	Leu	Val	Lys	Asp	Lys	Gln	Tyr	Gln	Asp	Tyr	Lys	Lys	Arg	Ala	Ala		
	370					375					380						
Ala	Gly	Asp	Lys	Thr	Ala	Ala	Glu	Gln	Ala	Asn	Met	Leu	Lys	Gly	Ala		
385					390					395					400		
Leu	Leu	Ala	Gln	Leu	Leu	Pro	Asp	Leu	Gln	Ala	Lys	Gln	Gly	Leu	Leu		
				405					410					415			
Ala	Ala	Thr	Asp	Met	Thr	Gln	Ile	Arg	Glu	Tyr	Met	Ala	Ser	Leu	Ala		
			420					425					430				
Gly	Val	Thr	Leu	Asp	Asn	Gly	Lys	Ile	Ala	Lys	Asn	Asn	Glu	Ala	Arg		
		435					440					445					
Met	Leu	Ser	Ala	Ala	Ala	Gln	Gln	Glu	Gln	Gln	Glu	Ser	Leu	Ala	Met		
	450					455					460						
Leu	Arg	Glu	Ser	Leu	Thr	Gly	Thr	Leu	Val	Asp	Met	Glu	Thr	Ser	Phe		
465					470					475					480		
Lys	Lys	Leu	Ala	Ala	Glu	Tyr	Pro	Asn	Ala	Thr	Leu	Ala	Leu	Gln	Ala		
				485					490					495			

Leu Thr Thr Ala Ala Thr Ala Ala Ser Ala Ala Met Leu Leu Thr Ala  
500 505 510

Gly Gly Gly Lys Gly Ala Gly Phe Leu Lys Asp Val Gly Ser Lys Ala  
515 520 525

Leu Gly Trp Gly Lys Ala Ser Ala Gly Gly Val Ala Ala Gly Ala Thr  
530 535 540

Ala Ala Gly Gly Lys Leu Leu Ser Trp Gly Lys Ser Ala Gly Ser Gly  
545 550 555 560

Leu Met Asn Asn Pro Ala Leu Val Lys Arg Ala Gly Leu Leu Gly Met  
565 570 575

Leu Leu Tyr Ser Glu Ser Leu Gly Asp Gly Thr Leu Pro Lys Gly Leu  
580 585 590

Arg Gly Thr Lys Thr Thr Pro Glu Met Ile Asn Arg Leu Lys Asn Asn  
595 600 605

Gly Ile Arg Phe Glu Pro Ala Pro Lys Arg Glu Gln Ala Arg Gly Gly  
610 615 620

Val Pro Gln Tyr Leu Ala Ala Pro Ser Ala Gln Pro Thr Asp Lys Met  
625 630 635 640

Leu Ser Pro Leu Phe Ser Thr Gln Thr Ala Ala Tyr Gln Ala Ala Ile  
645 650 655

Gln Gln Gln Thr Ala Ala Tyr Gln Ala Ala Leu Ala Gln Asp Thr Ala  
660 665 670

Ala Val Thr Thr Gly Leu Ala Gln Val Gln Ser Ala Met Ala Ser Ala  
675 680 685

Ser Gln Thr Ile Asn Thr Asn Val Ser Leu Asn Ile Asp Gly Arg Val  
690 695 700

Ile Ala Asn Glu Val Ser Arg Tyr Gln Val Ala Met Phe Gly Arg Gly  
705 710 715 720

Ala Gly Gln

<210> 2429

<211> 1332

<212> DNA

<213> Neisseria meningitidis

<400> 2429

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gaggtggtgg acgagagcaa cggcaaggca ttggccgagc atgcgcggcc gtttgtgcag 120  
ggtatcgacc ttgaagacat gggcatgacc gggcggcagg tgcagattaa tgcggtgttt 180  
tggggcaagg gctatgcagg ccgtctgaaa aagctgctgg atgcgctgga gcagccgggc 240  
ggcggcgctgc tggtgcaccc tgtttggggg cggatgcaca acatgattgc ggcacatcatg 300

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agttaccgac atgaggccga ttatgtggat tatgcgggca tcgatattac tttccgcgag 360
gcggccgaag cgcaggaaat ctttgtttt gaaaacgcct ttttggtcga gcttgaggcg 420
ttgattgcta atatcgacac ctaccgcgag gcggctatcg gctttgttga tgcggtgttg 480
gcggtggatg cgggcgtatc agctttatgg ggcagcgcgc tgggcatttg gagtgcggca 540
tcgggtacgt ttggcgcggt gcgccgtttg tttgatttgg acaaaattgc ctttcccgat 600
cggggcggat acagtgcagc ggcgtttaa aacggctcgg ccaagctgtt tgcggatata 660
tcggtcatgg tagatactgg catacgccgt gaggcgggtt tggccgataa tgccatgcac 720
catgccggtt ggtcgccgcg acagcggttt gacggggctg cggctgttgc cgaccgcgc 780
gccgctatcc ctgataattt gctgaccggc cgcttttcag acggcctgca aaaccgcctg 840
aaccgggttaa ccgccaacaa ggtgcagccg gtagcgcagg cgggtgcgcct gttatccacg 900
tcacgcgtgt tgtcgggtggc aacggcatta atcgaggcgc atggcgaaga gatgaccgcg 960
cccgatattga ttgaggttaa ccgcgccatg cgccgcgta tgcaggccga gattgccgcc 1020
ttgcggggcg tgcagacggc tgctgccgag tctgggtggc tgacggccaa cgccgtgtat 1080
accgaggctt accaaacggc agaatccctg cgcgcgcgcg caggccgtct gaatgcgttg 1140
gttgcggcg tcatcaacca aaagccgcg ctgattgtgc gccaaagccc aatcgacggt 1200
acgatacacc aaatcgccca cgagttttac ggcgatatag cccgcgcagc agagctggtg 1260
cgggtcaatc cccatatcca ccaccccgcg tttatcaagc gcggcacttt ggtcaacagc 1320
tatgcaaaat aa 1332

```

<210> 2430

<211> 443

<212> PRT

<213> Neisseria meningitidis

<400> 2430

```

Met Ser Gly Trp His Thr Leu Leu Gln Asp Ala Ser Tyr Lys Gly Val
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```

```

Gly Phe Asp Ile Glu Val Val Asp Glu Ser Asn Gly Lys Ala Leu Ala
      20                      25                      30

```

```

Glu His Ala Arg Pro Phe Val Gln Gly Ile Asp Leu Glu Asp Met Gly
      35                      40                      45

```

```

Met Thr Gly Arg Gln Val Gln Ile Asn Ala Val Phe Trp Gly Lys Gly
      50                      55                      60

```

```

Tyr Ala Gly Arg Leu Lys Lys Leu Leu Asp Ala Leu Glu Gln Pro Gly
      65                      70                      75                      80

```

```

Gly Gly Val Leu Val His Pro Val Trp Gly Arg Met His Asn Met Ile
      85                      90                      95

```

```

Ala Ala Ser Trp Ser Tyr Arg His Glu Ala Asp Tyr Val Asp Tyr Ala
      100                      105                      110

```

```

Gly Ile Asp Ile Thr Phe Arg Glu Ala Ala Glu Ala Gln Glu Ile Phe
      115                      120                      125

```

```

Val Phe Glu Asn Ala Phe Leu Val Glu Leu Glu Ala Leu Ile Ala Asn
      130                      135                      140

```

```

Ile Asp Thr Tyr Arg Glu Ala Ala Ile Gly Phe Val Asp Ala Val Leu
      145                      150                      155                      160

```

```

Ala Val Asp Ala Gly Val Ser Ala Leu Trp Gly Ser Ala Leu Gly Ile

```

165										170					175				
Trp	Ser	Ala	Ala	Ser	Gly	Thr	Phe	Gly	Ala	Val	Arg	Arg	Leu	Phe	Asp				
			180					185					190						
Leu	Asp	Lys	Ile	Ala	Phe	Pro	Asp	Arg	Gly	Gly	Tyr	Ser	Ala	Ala	Ala				
		195					200					205							
Phe	Lys	Asn	Gly	Ser	Ala	Lys	Leu	Phe	Ala	Asp	Ile	Ser	Val	Met	Val				
		210				215					220								
Asp	Thr	Gly	Ile	Arg	Arg	Glu	Ala	Gly	Leu	Ala	Asp	Asn	Ala	Met	His				
225				230						235					240				
His	Ala	Gly	Trp	Ser	Pro	Arg	Gln	Arg	Phe	Asp	Gly	Ala	Ala	Ala	Val				
				245					250						255				
Ala	Asp	Arg	Ala	Ala	Ala	Ile	Pro	Asp	Asn	Leu	Leu	Thr	Gly	Arg	Phe				
			260					265					270						
Ser	Asp	Gly	Leu	Gln	Asn	Arg	Leu	Asn	Arg	Leu	Thr	Ala	Lys	Gln	Val				
		275					280					285							
Gln	Pro	Val	Ala	Gln	Ala	Val	Arg	Leu	Leu	Ser	Thr	Ser	Ser	Leu	Leu				
		290				295					300								
Ser	Val	Ala	Thr	Ala	Leu	Ile	Glu	Ala	His	Gly	Glu	Glu	Met	Thr	Ala				
305					310				315						320				
Pro	Asp	Leu	Ile	Glu	Val	Asn	Arg	Ala	Met	Arg	Arg	Arg	Met	Gln	Ala				
				325					330					335					
Glu	Ile	Ala	Ala	Leu	Arg	Ala	Val	Gln	Thr	Ala	Ala	Ala	Glu	Ser	Gly				
		340						345					350						
Gly	Leu	Thr	Ala	Asn	Ala	Val	Tyr	Thr	Glu	Ala	Tyr	Gln	Thr	Ala	Glu				
		355					360					365							
Ser	Leu	Arg	Ala	Ala	Ala	Gly	Arg	Leu	Asn	Ala	Leu	Val	Ala	Ala	Val				
		370				375					380								
Ile	Asn	Gln	Lys	Pro	Pro	Leu	Ile	Val	Arg	Gln	Ala	Pro	Ile	Asp	Gly				
385				390						395					400				
Thr	Ile	His	Gln	Ile	Ala	His	Glu	Phe	Tyr	Gly	Asp	Ile	Ala	Arg	Ala				
				405					410					415					
Ala	Glu	Leu	Val	Arg	Leu	Asn	Pro	His	Ile	His	His	Pro	Ala	Phe	Ile				
			420					425					430						
Lys	Arg	Gly	Thr	Leu	Val	Asn	Ser	Tyr	Ala	Lys									
		435					440												

<210> 2431

<211> 510

<212> DNA

<213> Neisseria meningitidis

<400> 2431

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ggcgaagaga tgaccgcgcc cgatttgatt gaggttaacc gcgccatgcg ccgccgtatg 180
caggccgaga ttgccgcctt acgggcggtg cagacggctg ctgccgagtc tgggtgggctg 240
acggccaacg ccgtgtatac cgaggcttac caaacggcag aatccctgcg cgcggcggca 300
ggccgtctga atgcgttggt tgcggcggtc atcaaccaa agccgccgct gattgtgcgc 360
caagcccaa tcgacggtac gatacaccaa atcgcccacg agttttacgg cgatatagcc 420
cgcgcagcag agctggtgcg gctcaatccc catatccacc accccgcggt tatcaagcgc 480
ggcactttgg tcaacagcta tgcaaaataa 510
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<210> 2432

<211> 169

<212> PRT

<213> Neisseria meningitidis

<400> 2432

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Gly Leu Gln Asn Arg Leu Asn Arg Leu Thr Ala Lys Gln Val Gln Pro
  1              5              10              15

Val Ala Gln Ala Val Arg Leu Leu Ser Thr Ser Ser Leu Leu Ser Val
      20              25              30

Ala Thr Ala Leu Ile Glu Ala His Gly Glu Glu Met Thr Ala Pro Asp
      35              40              45

Leu Ile Glu Val Asn Arg Ala Met Arg Arg Arg Met Gln Ala Glu Ile
      50              55              60

Ala Ala Leu Arg Ala Val Gln Thr Ala Ala Ala Glu Ser Gly Gly Leu
      65              70              75              80

Thr Ala Asn Ala Val Tyr Thr Glu Ala Tyr Gln Thr Ala Glu Ser Leu
      85              90              95

Arg Ala Ala Ala Gly Arg Leu Asn Ala Leu Val Ala Ala Val Ile Asn
      100             105             110

Gln Lys Pro Pro Leu Ile Val Arg Gln Ala Pro Ile Asp Gly Thr Ile
      115             120             125

His Gln Ile Ala His Glu Phe Tyr Gly Asp Ile Ala Arg Ala Ala Glu
      130             135             140

Leu Val Arg Leu Asn Pro His Ile His His Pro Ala Phe Ile Lys Arg
      145             150             155             160

Gly Thr Leu Val Asn Ser Tyr Ala Lys
      165
```

<210> 2433

<211> 1062

<212> DNA  
<213> Neisseria meningitidis

<400> 2433  
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gatgtccctg cgtggtatct gaccgaagaa aacggtcacg atgtcgcggt gttggccaac 180  
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tttgccgaag tggagtggac ggacaaggcg gctgcggcaa ttgccgcaaa agagtatcgc 360  
tacatctctg ctgtgttttc ctatgacaca aagggatatg taagcaaaat ttttcacgcc 420  
gcgctgacaa atttccccgc gttggacggt atggacgagg tgctggcggc agcgtcggcg 480  
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cgcatcgcgg cattgacggc gcaaaccgcc aagcctgatt tgactaaata cgcgcctatc 720  
tcagtggttc aagagctgca aagcaaagtc gccgcgctga ctgccaagca ggaagcagac 780  
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gagtgggcaa aaggcgatatt gaaacagccg ggccgcttgg catttttgac cggctttatt 900  
gaaaacgccc agccggtcgc tgcaactggca ggctcgcaaa cgggcgggcaa agcaccgcgac 960  
gaacgcgtcg ccgcactgac tgcggaagag gcagccgcag caaaaatgct gggcatgtcc 1020  
ggcgaagaat ttgtaaaaat caaagaaagc gaaggttaagt aa 1062

<210> 2434  
<211> 353  
<212> PRT  
<213> Neisseria meningitidis

<400> 2434  
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Arg Ala Val Asp Gly Arg Pro Thr Asp Val Pro Ala Trp Tyr Leu Thr  
35 40 45  
Glu Glu Asn Gly His Asp Val Ala Leu Leu Ala Asn Ser Ser Arg Asn  
50 55 60  
Gln Leu Val Val Asp Tyr Glu His Gln Thr Leu Tyr Lys Glu Lys Asn  
65 70 75 80  
Gly Gln Pro Ala Pro Ala Ala Gly Trp Met Arg Trp Leu Glu Phe Thr  
85 90 95  
Pro Lys Gly Met Phe Ala Glu Val Glu Trp Thr Asp Lys Ala Ala Ala  
100 105 110  
Ala Ile Ala Ala Lys Glu Tyr Arg Tyr Ile Ser Ala Val Phe Ser Tyr  
115 120 125  
Asp Thr Lys Gly Tyr Val Ser Lys Ile Phe His Ala Ala Leu Thr Asn  
130 135 140

Phe Pro Ala Leu Asp Gly Met Asp Glu Val Leu Ala Ala Ala Ser Ala  
145 150 155 160  
Gln Ile Leu Lys Pro Glu Thr Glu Gln Asn Pro Met Lys Glu Leu Leu  
165 170 175  
Gln Gln Leu Phe Asp Leu Pro Asp Ala Gly Glu Glu Glu Leu Lys Ala  
180 185 190  
Ala Leu Ser Ala Leu Val Glu Ala Lys Pro Lys Asp Val Ala Leu Ser  
195 200 205  
Ala Asp Val Phe Ala Gln Leu Ala Glu Lys Asp Ser Arg Ile Ala Ala  
210 215 220  
Leu Thr Ala Gln Thr Ala Lys Pro Asp Leu Thr Lys Tyr Ala Pro Ile  
225 230 235 240  
Ser Val Val Gln Glu Leu Gln Ser Lys Val Ala Ala Leu Thr Ala Lys  
245 250 255  
Gln Glu Ala Asp Lys Gly Asn Glu Leu Ile Thr Ala Ala Leu Thr Ser  
260 265 270  
Gly Lys Leu Leu Pro Ala Gln Lys Glu Trp Ala Lys Gly Val Leu Lys  
275 280 285  
Gln Pro Gly Gly Leu Ala Phe Leu Thr Gly Phe Ile Glu Asn Ala Gln  
290 295 300  
Pro Val Ala Ala Leu Ala Gly Ser Gln Thr Gly Gly Lys Ala Pro Asp  
305 310 315 320  
Glu Arg Val Ala Ala Leu Thr Ala Glu Glu Ala Ala Ala Ala Lys Met  
325 330 335  
Leu Gly Met Ser Gly Glu Glu Phe Val Lys Ile Lys Glu Ser Glu Gly  
340 345 350

Lys

<210> 2435

<211> 1062

<212> DNA

<213> *Neisseria meningitidis*

<400> 2435

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gatgtccctg cgtggtatct gaccgaagaa aacggtcgatg atgtcgcggt gttggccaac 180  
agctcgcgca atcagttggt tgtcgattat gaacactaga cgctctacaa agagaaaaaac 240  
ggacaacctg cacctgccgc cggttggatg cgttggctgg agttcacgcc taaaggcatg 300  
tttgccgaag tggagtggac ggacaaggcg gctgcggcaa ttgccgcaaa agagtatcgc 360



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tacatctctg ctgtgttttc ctatgacaca aagggatatg taagcaaaat ttttcacgcc 420
gcgctgacaa atttccccgc gttggacggt atggacgagg tgctggcggc agcgtcggcg 480
caaattttta aaccggaaac ggagcaaaac cctatgaaag agttgttaca gcaactgttc 540
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aagccgaaag acgtggcatt gtctgccgac gtgttcgcgc agctggcggg aaaagacagc 660
cgcatcgcgg cattgacggc gcaaaccgcc aagcctgatt tgactaaata cgcgcctatc 720
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gaaaacgccc agccggtcgc tgcaactggc ggctcgcaaa cgggcggtaa agcaccgcac 960
gaacgcgtcg ccgcactgac tgcggaagag gcagccgcag caaaaatgct gggcatgtcc 1020
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<210> 2436  
 <211> 352  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2436  
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                   20                  25                  30  
 Arg Ala Val Asp Gly Arg Pro Thr Asp Val Pro Ala Trp Tyr Leu Thr  
                   35                  40                  45  
 Glu Glu Asn Gly His Asp Val Ala Leu Leu Ala Asn Ser Ser Arg Asn  
   50                  55                  60  
 Gln Leu Val Val Asp Tyr Glu His Thr Leu Tyr Lys Glu Lys Asn Gly  
   65                  70                  75                  80  
 Gln Pro Ala Pro Ala Ala Gly Trp Met Arg Trp Leu Glu Phe Thr Pro  
                   85                  90                  95  
 Lys Gly Met Phe Ala Glu Val Glu Trp Thr Asp Lys Ala Ala Ala Ala  
                   100                  105                  110  
 Ile Ala Ala Lys Glu Tyr Arg Tyr Ile Ser Ala Val Phe Ser Tyr Asp  
                   115                  120                  125  
 Thr Lys Gly Tyr Val Ser Lys Ile Phe His Ala Ala Leu Thr Asn Phe  
                   130                  135                  140  
 Pro Ala Leu Asp Gly Met Asp Glu Val Leu Ala Ala Ala Ser Ala Gln  
   145                  150                  155                  160  
 Ile Leu Lys Pro Glu Thr Glu Gln Asn Pro Met Lys Glu Leu Leu Gln  
                   165                  170                  175  
 Gln Leu Phe Gly Leu Pro Asp Ala Gly Glu Glu Glu Leu Lys Ala Ala  
                   180                  185                  190  
 Leu Ser Ala Leu Val Glu Ala Lys Pro Lys Asp Val Ala Leu Ser Ala

195	200	205
Asp Val Phe Ala Gln Leu	Ala Glu Lys Asp Ser Arg	Ile Ala Ala Leu
210	215	220
Thr Ala Gln Thr Ala Lys	Pro Asp Leu Thr Lys Tyr	Ala Pro Ile Ser
225	230	235 240
Val Val Gln Glu Leu Gln	Ser Lys Val Ala Ala Leu	Thr Ala Lys Gln
	245	250 255
Glu Ala Asp Lys Gly Asn	Glu Leu Ile Thr Ala Ala	Leu Thr Ser Gly
	260	265 270
Lys Leu Leu Pro Ala Gln	Lys Glu Trp Ala Glu Gly	Val Leu Lys Gln
	275	280 285
Pro Gly Gly Leu Ala Phe	Leu Thr Gly Phe Ile Glu	Asn Ala Gln Pro
	290	295 300
Val Ala Ala Leu Ala Gly	Ser Gln Thr Gly Gly Lys	Ala Pro Asp Glu
305	310	315 320
Arg Val Ala Ala Leu Thr	Ala Glu Glu Ala Ala Ala	Lys Met Leu
	325	330 335
Gly Met Ser Gly Glu Glu	Phe Val Lys Ile Lys Glu	Ser Glu Gly Lys
	340	345 350

<210> 2437  
 <211> 1056  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2437

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gccagctgcg	ccgaagggca	atatgcgcat	caaagctgga	ttgtgcggca	gattttccct	180
gataccgccg	accgcgagta	tttgagcgcg	catgcctcca	tgcgcggtt	gagccgcccgc	240
aatcctacca	cggccagcgg	cacgctgacc	gtaagcggtg	ttgcgcaatc	catgctttca	300
gacgacctgc	aagtgcgtat	cggccagcgt	ttttaccgca	ctaccgcccgc	cgccgttatc	360
ggcagcgggc	gcacggcgga	aataccggca	atcgccgacg	agccggggcg	ggccgccaat	420
gtgggcgacg	gcgaggcgca	actgatggcc	gccccgcgcg	gtgtggccac	cgaatgccgc	480
cttaccgtac	aaggcgccac	cgaccgagaa	agcgatgcct	cactgctggc	gcgtctgttg	540
gaaatcatcc	gccgaccgcc	cgcaggcggc	aaccgttacg	actataaaaa	ctgggcggtg	600
agtgttgacg	gcgtaaccag	cgcatatgtt	tatccgctgc	gccgcggctt	gggtacggtg	660
gatattgcca	ttacctccgc	cgacgggtgtg	tcgtcggaag	aaactgtgcg	ccgcgtacag	720
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aagcgccgca	tacggacggc	cctaaaaagaa	tatttcgaca	ccctgatccc	cggcgacggc	900
ctgactgtgt	cgcaaatcga	ggctgctatc	agcaatgtgg	atgggtgtgat	cgaccgcccgt	960
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cggggcgcga	ttaatgtaac	ggagatgccg	tcatga			1056

<210> 2438  
<211> 351  
<212> PRT  
<213> Neisseria meningitidis

<400> 2438  
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Asp Thr Lys Ser Leu Trp Pro Asp Ala Asp Ile Ser Pro Asp Ser Asp  
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His Tyr Val His Ala Ser Arg Leu Ala Ser Cys Ala Glu Gly Gln Tyr  
35 40 45  
Ala His Gln Ser Trp Ile Val Arg Gln Ile Phe Pro Asp Thr Ala Asp  
50 55 60  
Arg Glu Tyr Leu Glu Arg His Ala Ser Met Arg Gly Leu Ser Arg Arg  
65 70 75 80  
Asn Pro Thr Thr Ala Ser Gly Thr Leu Thr Val Ser Gly Ile Ala Gln  
85 90 95  
Ser Met Leu Ser Asp Asp Leu Gln Val Arg Ile Gly Gln Arg Phe Tyr  
100 105 110  
Arg Thr Thr Ala Arg Ala Val Ile Gly Ser Gly Gly Thr Ala Glu Ile  
115 120 125  
Pro Ala Ile Ala Asp Glu Pro Gly Ala Ala Ala Asn Val Gly Asp Gly  
130 135 140  
Glu Ala Gln Leu Met Ala Ala Pro Ala Gly Val Ala Thr Glu Cys Arg  
145 150 155 160  
Leu Thr Val Gln Gly Gly Thr Asp Arg Glu Ser Asp Ala Ser Leu Leu  
165 170 175  
Ala Arg Leu Leu Glu Ile Ile Arg Arg Pro Pro Ala Gly Gly Asn Arg  
180 185 190  
Tyr Asp Tyr Lys Asn Trp Ala Leu Ser Val Asp Gly Val Thr Ser Ala  
195 200 205  
Tyr Val Tyr Pro Leu Arg Arg Gly Leu Gly Thr Val Asp Ile Ala Ile  
210 215 220  
Thr Ser Ala Asp Gly Val Ser Ser Glu Glu Thr Val Arg Arg Val Gln  
225 230 235 240  
Ala Tyr Ile Asp Glu Met Arg Pro Val Thr Ala Lys Asn Ala Leu Val  
245 250 255  
Leu Lys Pro Thr Val Thr Ala Val Pro Val Thr Val Gln Val Lys Leu

260

265

270

Asp Gly Ile Asp Leu Asp Glu Ala Lys Arg Arg Ile Arg Thr Ala Leu  
275 280 285

Lys Glu Tyr Phe Asp Thr Leu Ile Pro Gly Asp Gly Leu Thr Val Ser  
290 295 300

Gln Ile Glu Ala Ala Ile Ser Asn Val Asp Gly Val Ile Asp Arg Arg  
305 310 315 320

Leu Thr Ala Pro Thr Ala Asn Arg Ala Ala Asp Thr Val Asn Arg Ile  
325 330 335

Glu Trp Phe Lys Ala Gly Ala Ile Asn Val Thr Glu Met Pro Ser  
340 345 350

&lt;210&gt; 2439

&lt;211&gt; 1056

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 2439

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gccagctgcg ccgaagggca atatgcgcat caaagctgga ttgtgcggca gattttccct 180
gataccgcgc accgcgagta tttggagcgg catgcctcca tgcgcggcgt gcgccgcgcg 240
aatcctacca cggccagcgg cacgctgacc gtaagcggta ttgcgcaatc catgctttca 300
gacggcctgc aagtgcgtat cggccagcgt ttttaccgca ctaccgcccg cgccgttatc 360
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gtgcgcgacg gcgagggcga actgatggc gccccgcgcg gtgtgtccac cgaatgccgc 480
cttaccgtac aaggcggcac cgaccgagaa agcgatgcct cactgctggc gcgtctgttg 540
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gatattgcca ttacctccgc cgacgggtgt ccatcggaag aaactgtgcg ccgcgtacag 720
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gtaacggcgg tgctgtttac cgtgcaagtc aagctcgacg gcacgcactt ggacgaggcc 840
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ctgactgtgt cgcaaatacg ggcggctatc agcaatgtgg atgggtgtgat cgacctccgt 960
ctgactgcgc cgacggccaa ccgtgccgcc gatacggtta accgcatcga gtggtttaaa 1020
gcgggcgcga ttaatgtaac ggagatgccg tcatga 1056

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&lt;210&gt; 2440

&lt;211&gt; 351

&lt;212&gt; PRT

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 2440

Val Phe Glu Thr Pro Thr Phe Glu Gln Ile Arg Glu Arg Ile Leu Arg  
1 5 10 15

Asp Thr Lys Ser Leu Trp Pro Asp Ala Asp Ile Ser Pro Asp Ser Asp  
20 25 30

His Tyr Val His Ala Ser Arg Leu Ala Ser Cys Ala Glu Gly Gln Tyr

35					40					45					
Ala	His	Gln	Ser	Trp	Ile	Val	Arg	Gln	Ile	Phe	Pro	Asp	Thr	Ala	Asp
50					55					60					
Arg	Glu	Tyr	Leu	Glu	Arg	His	Ala	Ser	Met	Arg	Gly	Leu	Arg	Arg	Arg
65					70					75					80
Asn	Pro	Thr	Thr	Ala	Ser	Gly	Thr	Leu	Thr	Val	Ser	Gly	Ile	Ala	Gln
				85					90					95	
Ser	Met	Leu	Ser	Asp	Gly	Leu	Gln	Val	Arg	Ile	Gly	Gln	Arg	Phe	Tyr
		100						105					110		
Arg	Thr	Thr	Ala	Arg	Ala	Val	Ile	Gly	Ser	Gly	Gly	Thr	Ala	Glu	Ile
		115					120					125			
Pro	Ala	Ile	Ala	Asp	Glu	Pro	Gly	Ala	Ala	Ala	Asn	Val	Arg	Asp	Gly
	130					135					140				
Glu	Ala	Gln	Leu	Met	Ala	Ala	Pro	Ala	Gly	Val	Ser	Thr	Glu	Cys	Arg
145				150					155					160	
Leu	Thr	Val	Gln	Gly	Gly	Thr	Asp	Arg	Glu	Ser	Asp	Ala	Ser	Leu	Leu
			165						170					175	
Ala	Arg	Leu	Leu	Glu	Ile	Ile	Arg	Arg	Pro	Pro	Ala	Gly	Gly	Asn	Arg
		180					185						190		
Tyr	Asp	Tyr	Lys	Asn	Trp	Ala	Leu	Ser	Val	Asp	Gly	Val	Thr	Ser	Ala
	195						200					205			
Tyr	Val	Tyr	Pro	Leu	Arg	Arg	Gly	Leu	Gly	Thr	Val	Asp	Ile	Ala	Ile
	210					215					220				
Thr	Ser	Ala	Asp	Gly	Val	Pro	Ser	Glu	Glu	Thr	Val	Arg	Arg	Val	Gln
225				230					235					240	
Ala	Tyr	Ile	Asp	Glu	Met	Arg	Pro	Val	Thr	Ala	Lys	Asn	Ala	Leu	Val
			245						250				255		
Leu	Lys	Pro	Thr	Val	Thr	Ala	Val	Pro	Val	Thr	Val	Gln	Val	Lys	Leu
		260					265					270			
Asp	Gly	Ile	Asp	Leu	Asp	Glu	Ala	Lys	Arg	Arg	Ile	Arg	Thr	Ala	Leu
	275					280					285				
Lys	Glu	Tyr	Phe	Asp	Thr	Leu	Ile	Pro	Gly	Asp	Gly	Leu	Thr	Val	Ser
	290					295					300				
Gln	Ile	Glu	Ala	Ala	Ile	Ser	Asn	Val	Asp	Gly	Val	Ile	Asp	Leu	Arg
305				310					315					320	
Leu	Thr	Ala	Pro	Thr	Ala	Asn	Arg	Ala	Ala	Asp	Thr	Val	Asn	Arg	Ile
			325					330					335		

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 340 345 350

<210> 2441  
 <211> 909  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2441  
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 ttcgccgcta tcatccacgc ccagctgcac ttcgcccttg gccatagcac gcagcaggtc 180  
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 gcctgcacgg cgtccaattc ggctttgatg tcttcaaacg acggggcggc ggtttcggcg 840  
 gtttctgggt tggtgttggt ttttgccatg atgactcctt gtttcagacg gcggcggtatt 900  
 cgcatattga 909

<210> 2442  
 <211> 302  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2442  
 Met Arg Pro Lys Pro Arg Phe Arg Arg Ser Val Ile Ala Cys Ser Ile  
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 Ser Val Ile Thr Pro Glu His Leu Ile Phe Thr Val Tyr Lys His Asn  
 20 25 30  
 Thr Val Phe Ala Arg Gly His Phe Phe Ala Ala Ile Ile His Ala Gln  
 35 40 45  
 Leu His Phe Ala Phe Gly His Ser Thr Gln Gln Val Glu His Val Asp  
 50 55 60  
 Phe Val Ala Val Ala Asp Phe Val Gly Asn Gln His Ala Leu Ser Arg  
 65 70 75 80  
 Arg Gln Thr Val Ala Gly Asn Val Ala Ala Lys Ala His Gln Asp Gly  
 85 90 95  
 Arg Gln Ile Leu Lys Arg Ser Ser Glu Pro Pro Gln Ile Arg Val Asp  
 100 105 110  
 Phe Gly Ser Gly Val His Gln Arg Gly Leu Cys Asp Leu Ala Val Asn

115					120					125						
Gln	Pro	Leu	Val	Val	Ala	Val	Gly	Glu	Leu	Gln	Asp	Phe	Gln	Leu	Thr	
130					135					140						
Glu	Thr	Arg	Asn	His	Ile	Leu	Asn	Arg	Arg	Val	Cys	His	Tyr	Ser	Thr	
145					150					155					160	
Ala	Leu	Arg	Cys	Ser	Ile	Gly	Ser	Ala	Gln	Ile	Ala	Phe	His	Thr	Ala	
165					170					175						
Ser	Pro	Thr	Ser	Ala	Arg	Phe	Thr	Ser	Arg	Gln	Pro	Pro	Ser	Asn	Ser	
180					185					190						
Arg	Pro	Pro	Arg	Gln	Asn	Ser	Leu	Pro	Ser	Ala	Pro	Val	Leu	Thr	Ser	
195					200					205						
Ile	Thr	Ser	Arg	Leu	Ser	Ala	Lys	Ala	Ser	Ala	Ala	Arg	Cys	Val	Cys	
210					215					220						
Cys	Thr	Leu	Ser	Ser	Ala	Ser	Ser	Ala	Asp	Ser	Ala	Phe	Leu	Ser	Ser	
225					230					235					240	
Ser	Ala	Phe	Ser	Lys	Ala	Val	Val	Ser	Ile	Ser	Thr	Ser	Phe	Arg	Ala	
245					250					255						
Ala	Ala	Ser	Ser	Ala	Cys	Thr	Ala	Ser	Asn	Ser	Ala	Leu	Met	Ser	Ser	
260					265					270						
Asn	Asp	Gly	Ala	Ala	Val	Ser	Ala	Val	Ser	Gly	Leu	Leu	Leu	Val	Phe	
275					280					285						
Ala	Met	Met	Thr	Pro	Cys	Phe	Arg	Arg	Arg	Arg	Ile	Arg	Ile			
290					295					300						

<210> 2443

<211> 669

<212> DNA

<213> Neisseria meningitidis

<400> 2443

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cccggcgaga cggcgatttt taatcatgag ggtgcaaaaa tcgtgattaa gcaaggcaaaa 360
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gccacggatg ccaaatttaa cgctccggtt gtggagacca gtgcagtgtt gacggcgcaa 480
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ggcgatgtta accaaacggg cggcagcttt aacaccgacg gcgacgtggt ggccggcaat 600
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cggcatag                                     669

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<210> 2444  
 <211> 222  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2444  
 Met Ser Leu Ser Lys Leu Ala Lys Lys Thr Ala Gln Thr Ala Lys Asn  
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 Ile Gly Glu Thr Leu Arg Ala Ala Phe Arg Gly Lys Ile Thr Leu Val  
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 Val Ser Ser Glu Pro Ile Gln Arg Val Gln Leu Ser Gly Leu Ala Asp  
 35 40 45  
 Glu Thr Leu Gln Asp Leu Glu His Leu Gln Glu Tyr Gly Phe Ala Ser  
 50 55 60  
 His Pro Pro Asp Gly Ser Glu Ala Val Val Ile Pro Leu Gly Gly Asn  
 65 70 75 80  
 Thr Ser His Gly Val Ile Val Cys Ser Gln His Gly Ser Tyr Arg Ile  
 85 90 95  
 Lys Asn Leu Lys Pro Gly Glu Thr Ala Ile Phe Asn His Glu Gly Ala  
 100 105 110  
 Lys Ile Val Ile Lys Gln Gly Lys Ile Ile Glu Ala Asp Cys Asp Val  
 115 120 125  
 Tyr Arg Val Asn Cys Lys Gln Tyr Glu Val Asn Ala Ala Thr Asp Ala  
 130 135 140  
 Lys Phe Asn Ala Pro Leu Val Glu Thr Ser Ala Val Leu Thr Ala Gln  
 145 150 155 160  
 Gly Gln Ile Asn Gly Asn Gly Gly Met Ala Val Glu Gly Gly Asp Gly  
 165 170 175  
 Ala Thr Phe Ser Gly Asp Val Asn Gln Thr Gly Gly Ser Phe Asn Thr  
 180 185 190  
 Asp Gly Asp Val Val Ala Gly Asn Ile Ser Leu Arg Gln His Pro His  
 195 200 205  
 Thr Asp Ser Ile Gly Gly Lys Thr Leu Pro Ala Glu Pro Ala  
 210 215 220

<210> 2445  
 <211> 669  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2445  
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ctgcgcgcgg cctttcgggg aaaaatcacg ctggtggtgt cgtccgagcc gatacagcgc 120
gtgcagttga gcggcttggc cgacgaaacc ctgcaagacc ttgaacattt gcaggaatac 180
ggctttgcca gccatccgcc cgacggcagc gaagcggtag tgataccgct gggcggcaat 240
acttcgcacg gtgtgattgt gtgcagccag cacggcagct accgcatcaa aaaccttaag 300
cccggcgaga cggcgatttt taatcatgag ggtgcaaaaa tcgtgattaa gcaaggcaaa 360
atcattgagg cggattgcga cgtgtaccgg gttaactgca aacaatacga ggттаатgсg 420
gccacggatg ccaaatttaa cgctccgttg gtggagacca gtgcagtgtt gacggcgcaa 480
ggccaaatca acggcaacgg cggcatggcc gtcgagggcg gcgacggagc cacctttagc 540
ggcgatgtta accaaacggg cggcagcttt aacaccgacg gcgacgtggt ggccggcaat 600
atatcgttgc gccagcaccg gcataccgac agcatcggcg gcaaaacctt accggcgcaa 660
ccggcatag

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<210> 2446

<211> 222

<212> PRT

<213> Neisseria meningitidis

<400> 2446

```

Met Ser Leu Ser Lys Leu Ala Lys Lys Thr Ala Gln Thr Ala Lys Asn
  1              5              10              15

```

```

Ile Gly Glu Thr Leu Arg Ala Ala Phe Arg Gly Lys Ile Thr Leu Val
      20              25              30

```

```

Val Ser Ser Glu Pro Ile Gln Arg Val Gln Leu Ser Gly Leu Ala Asp
      35              40              45

```

```

Glu Thr Leu Gln Asp Leu Glu His Leu Gln Glu Tyr Gly Phe Ala Ser
      50              55              60

```

```

His Pro Pro Asp Gly Ser Glu Ala Val Val Ile Pro Leu Gly Gly Asn
      65              70              75              80

```

```

Thr Ser His Gly Val Ile Val Cys Ser Gln His Gly Ser Tyr Arg Ile
      85              90              95

```

```

Lys Asn Leu Lys Pro Gly Glu Thr Ala Ile Phe Asn His Glu Gly Ala
      100             105             110

```

```

Lys Ile Val Ile Lys Gln Gly Lys Ile Ile Glu Ala Asp Cys Asp Val
      115             120             125

```

```

Tyr Arg Val Asn Cys Lys Gln Tyr Glu Val Asn Ala Ala Thr Asp Ala
      130             135             140

```

```

Lys Phe Asn Ala Pro Leu Val Glu Thr Ser Ala Val Leu Thr Ala Gln
      145             150             155             160

```

```

Gly Gln Ile Asn Gly Asn Gly Gly Met Ala Val Glu Gly Gly Asp Gly
      165             170             175

```

```

Ala Thr Phe Ser Gly Asp Val Asn Gln Thr Gly Gly Ser Phe Asn Thr
      180             185             190

```

```

Asp Gly Asp Val Val Ala Gly Asn Ile Ser Leu Arg Gln His Pro His
      195             200             205

```

Thr Asp Ser Ile Gly Gly Lys Thr Leu Pro Ala Glu Pro Ala  
 210 215 220

<210> 2447  
 <211> 594  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2447  
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 acgctgcctg cggtttgggt aacgtatggc ggcagcaaag ttgagcctgc cagcaccggc 120  
 ggcgtatgcg gacgttatca ggataccgcc gaatttgtgg tgatggtggc ggcccgcaat 180  
 ctgcgcaacg agcaggcgca gcggcaaggc ggcacgcaca gccgcgaaat cggcagcaac 240  
 gatttaatcc gcgctgttcg ccgcctgctt gacggccagc ggctcggttt tgccgatagc 300  
 cgcggtttgg tgcccaaagc ggtgcgcgcg attgccaatc atgtgctggt gcaaaacgcc 360  
 gcagtaagca tatatgcggt tgagtatgcc atccgcttta acacctgcgg gttggaaaat 420  
 gaccgctacc ccgaacgcac cgacaatccc gacgacccca accatatctt taccaagtat 480  
 cagggtagcat tgagcgagcc gtggcctgat ttcgaggggt tggacggcaa aatttacgac 540  
 ccgcaatccg ccgatgaaat acctgtaaac ctaaccctta aggataagca atga 594

<210> 2448  
 <211> 197  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2448  
 Met Val Arg Thr Val Lys Ser Tyr Asn Gly Glu Ala Asp Asp Leu Ala  
 1 5 10 15  
 Gly Gln Ile His Thr Leu Pro Ala Val Trp Val Thr Tyr Gly Gly Ser  
 20 25 30  
 Lys Val Glu Pro Ala Ser Thr Gly Gly Val Cys Gly Arg Tyr Gln Asp  
 35 40 45  
 Thr Ala Glu Phe Val Val Met Val Ala Ala Arg Asn Leu Arg Asn Glu  
 50 55 60  
 Gln Ala Gln Arg Gln Gly Gly Ile Asp Ser Arg Glu Ile Gly Ser Asn  
 65 70 75 80  
 Asp Leu Ile Arg Ala Val Arg Arg Leu Leu Asp Gly Gln Arg Leu Gly  
 85 90 95  
 Phe Ala Asp Ser Arg Gly Leu Val Pro Lys Ala Val Arg Ala Ile Ala  
 100 105 110  
 Asn His Val Leu Val Gln Asn Ala Ala Val Ser Ile Tyr Ala Val Glu  
 115 120 125  
 Tyr Ala Ile Arg Phe Asn Thr Cys Gly Leu Glu Asn Asp Arg Tyr Pro  
 130 135 140  
 Glu Arg Thr Asp Asn Pro Asp Asp Pro Asn His Ile Phe Thr Lys Tyr



Phe Tyr Arg Gln Glu Lys Glu Ala Leu Ala Arg Gln Ala Asp Asn Asn  
 115 120 125

Ala Pro Thr Pro Met Leu Ala Gln Ile Ala Ala Ala Arg Gly Val Glu  
 130 135 140

Leu Asp Val Leu Ile Glu Lys Val Ile Glu Lys Ser Ala Arg Leu Ala  
 145 150 155 160

Val Ala Ala Gly Ala Ile Ile Gly Lys Arg Gln Gln Leu Glu Asp Lys  
 165 170 175

Leu Asn Thr Ile Glu Thr Ala Pro Gly Leu Asp Ala Leu Glu Lys Glu  
 180 185 190

Ile Glu Glu Trp Thr Leu Asn Ile Gly  
 195 200

<210> 2451  
 <211> 606  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2451  
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 gcggttgccg tccgcgccga agaatacgcc gcccttttg caggacaggc gcagggcg 120  
 cagattgccg cagattccga cggccgcccc gttttaaccc cgccgcgccg gtccgaatac 180  
 cacgaatggg acggcaagaa atgggaaatc ggcgaagccg ctgccgccgc ccgtttcgcc 240  
 gaacaaaaaa ccgccacggc attccgcctc gcggcaaagg cggacgaact caaaaacagc 300  
 ctcttgccgg gctatcccca agtggaaatc gacagctttt acaggcagga aaaagaagcc 360  
 ctgcgcgggc aggcggacaa caacgccccg accccgatgc tggcgcaaat cgccgccgca 420  
 agggcgctgg aattggacgt tttgattgaa aaagttgtcg aaaaatccgc ccgcctggcc 480  
 gttgccgccg gcgcgattat cggaaagcgg cagcagctcg aagacaaatt gaacaccatc 540  
 gaaaccgcgc caggattgga cgcgctggaa aaggaaatcg aagaatggac gctaaacatc 600  
 ggctga 606

<210> 2452  
 <211> 201  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2452  
 Met Thr Ile Tyr Phe Lys Asn Gly Phe Tyr Asp Asp Thr Leu Gly Ser  
 1 5 10 15  
 Ile Pro Glu Gly Ala Val Ala Val Arg Ala Glu Glu Tyr Ala Ala Leu  
 20 25 30  
 Leu Ala Gly Gln Ala Gln Gly Gly Gln Ile Ala Ala Asp Ser Asp Gly  
 35 40 45  
 Arg Pro Val Leu Thr Pro Pro Arg Pro Ser Glu Tyr His Glu Trp Asp  
 50 55 60

Gly Lys Lys Trp Glu Ile Gly Glu Ala Ala Ala Ala Arg Phe Ala  
 65 70 75 80  
 Glu Gln Lys Thr Ala Thr Ala Phe Arg Leu Ala Ala Lys Ala Asp Glu  
 85 90 95  
 Leu Lys Asn Ser Leu Leu Ala Gly Tyr Pro Gln Val Glu Ile Asp Ser  
 100 105 110  
 Phe Tyr Arg Gln Glu Lys Glu Ala Leu Ala Arg Gln Ala Asp Asn Asn  
 115 120 125  
 Ala Pro Thr Pro Met Leu Ala Gln Ile Ala Ala Ala Arg Gly Val Glu  
 130 135 140  
 Leu Asp Val Leu Ile Glu Lys Val Val Glu Lys Ser Ala Arg Leu Ala  
 145 150 155 160  
 Val Ala Ala Gly Ala Ile Ile Gly Lys Arg Gln Gln Leu Glu Asp Lys  
 165 170 175  
 Leu Asn Thr Ile Glu Thr Ala Pro Gly Leu Asp Ala Leu Glu Lys Glu  
 180 185 190  
 Ile Glu Glu Trp Thr Leu Asn Ile Gly  
 195 200

<210> 2453  
 <211> 405  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2453  
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 ggcacgggct tggctgtgtc gcaccatcaa ggctacaagt cggcatttgc gaagcagcag 120  
 gcggtcatcg acaagatgga gcgcgacaag gcgcaagccc tgctgttgctc ggctcaaaac 180  
 tatgcgcgcg aactggaact ggcacgcgcg gaagctaaaa aatatgaagt caagcgcac 240  
 gctgtcggca tggctttggc gaaaaaacag gcggaagtca gccgtctgaa aacggaaaga 300  
 gacctttgca aaattccttt cctccccgac agccgaaacc caaacacagg ttttcggctg 360  
 ttttcgcccc aaataccgcc taattttacc caaatacccc cttaa 405

<210> 2454  
 <211> 134  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2454  
 Met Asn Leu Val Lys Leu Leu Ala Asn Asn Trp Gln Pro Ile Ala Ile  
 1 5 10 15  
 Ile Ala Leu Val Gly Thr Gly Leu Ala Val Ser His His Gln Gly Tyr  
 20 25 30  
 Lys Ser Ala Phe Ala Lys Gln Gln Ala Val Ile Asp Lys Met Glu Arg

35	40	45
Asp Lys Ala Gln Ala Leu Leu Ser Ala Gln Asn Tyr Ala Arg Glu		
50	55	60
Leu Glu Leu Ala Arg Ala Glu Ala Lys Lys Tyr Glu Val Lys Ala His		
65	70	75 80
Ala Val Gly Met Ala Leu Ala Lys Lys Gln Ala Glu Val Ser Arg Leu		
	85	90 95
Lys Thr Glu Arg Asp Leu Cys Lys Ile Pro Phe Pro Pro Asp Ser Arg		
	100	105 110
Asn Pro Asn Thr Gly Phe Arg Leu Phe Ser Pro Gln Ile Pro Pro Asn		
	115	120 125
Phe Thr Gln Ile Pro Pro		
130		

<210> 2455  
 <211> 420  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2455  
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 ggcacgggtt tggcgggtgc gcaccatcaa ggctacaagt cggcttttgc gaagcagcag 120  
 gcggtcattg agaaaatgaa gcgcgacaag gcgcaagccc tgctgttgct ggctcaaaac 180  
 tacgcccgcg aactggaaca ggcgcgtgcg gaagctaaaa aatatgaagt caaggcgcac 240  
 gccgtcggca tggctttggc gaaaaaacag gcggaagtca gccgtctgaa aacggaaaat 300  
 aaaaaggaaa tcgaaaatgt ccttactcaa gaccgtaaaa atgcaggcgg cggttgtatt 360  
 gacggctttg gccatcacgg cttgcagctc tacaagcgcg ccctcggcta cggaaattaa 420

<210> 2456  
 <211> 139  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2456  
 Met Asn Leu Val Lys Leu Leu Ala Asn Asn Trp Gln Pro Ile Ala Ile  
 1 5 10 15  
 Ile Ala Leu Val Gly Thr Gly Leu Ala Val Ser His His Gln Gly Tyr  
 20 25 30  
 Lys Ser Ala Phe Ala Lys Gln Gln Ala Val Ile Glu Lys Met Lys Arg  
 35 40 45  
 Asp Lys Ala Gln Ala Leu Leu Leu Ser Ala Gln Asn Tyr Ala Arg Glu  
 50 55 60  
 Leu Glu Gln Ala Arg Ala Glu Ala Lys Lys Tyr Glu Val Lys Ala His  
 65 70 75 80

Ala Val Gly Met Ala Leu Ala Lys Lys Gln Ala Glu Val Ser Arg Leu  
85 90 95

Lys Thr Glu Asn Lys Lys Glu Ile Glu Asn Val Leu Thr Gln Asp Arg  
100 105 110

Lys Asn Ala Gly Gly Gly Cys Ile Asp Gly Phe Gly His His Gly Leu  
115 120 125

Gln Leu Tyr Lys Arg Ala Leu Gly Tyr Gly Asn  
130 135

<210> 2457  
<211> 1134  
<212> DNA  
<213> Neisseria gonorrhoeae

<400> 2457  
atgtttaaaa aattcaaacc ggtactgttg tcattttttg cacttgtatt tgcctttttg 60  
ctgggaacag gtattgccta tgagattaat ccgcgttggg ttttgagcga tacggcaact 120  
gaagtacctg aaaatccgaa tgcttttgtg gcgaaacttg cccgcctgtt ccgaaatgcc 180  
gacagggcgg ttgtcatcgt gaaggaaatcg atgaggacgg aggaaagcct tgccggagct 240  
gtggatgacg gtccgttgca gtcggagaag gattatctcg cgctcgctat ccggctcagt 300  
cgtttgaaaag aaaaggcga atggtttcac gtaacggagc aggaacatgg ggaagagggt 360  
tggctggatt actatatcgg cgagggcggg ttggttgagg ttctgctttc gcaacgctcg 420  
ccggaagcgt ttgttaatgc cgaatatctg tatcggaacg atcgtcggtt ttctgtaa at 480  
gtgtacggcg gaacggctca cggggaaaat tatgaaacga caggagaata tcgggttggt 540  
tggcaaccgg acggttcggt atttgatgcg gcggggcgcg ggaaaatcgg ggaagatgtt 600  
tatgagcatt gcctcgggtg ttatcagatg gccaggtat atttgcgaa ataccgggat 660  
gtcgcgaatg acgagcagaa ggtttgggac ttccgcgaag agagcaaccg gattgcatcg 720  
gactcgcgcg attatgtgtt ttatcagaat atgcgggaat tgatgccccg ggggatgaag 780  
gcgaacagtc ttgtggtcgg ctatgatgcg gacggtctgc cgcaaaaagt ctattggagt 840  
ttcgacaatg gaaaaaaacg ccagagtttc gaatattatt tgaaaaacgg aaatcttttt 900  
attgcacaat cttcgacggg agcattgaaa gcggatggcg taacggcgga tatgcagacc 960  
tatcatgcgc aacagacgtg gtatttggat ggcgggcgga ttatccgcga agagaaacag 1020  
ggagacagac tgcctgattt tcctttgaac ttggaagatt tggaaaaaga ggtgagccgt 1080  
tatgcagagg ctgcggcgag acgttcgggc ggcaggcgcg gcctttctca ctga 1134

<210> 2458  
<211> 377  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 2458  
Met Phe Lys Lys Phe Lys Pro Val Leu Leu Ser Phe Phe Ala Leu Val  
1 5 10 15

Phe Ala Phe Trp Leu Gly Thr Gly Ile Ala Tyr Glu Ile Asn Pro Arg  
20 25 30

Trp Phe Leu Ser Asp Thr Ala Thr Glu Val Pro Glu Asn Pro Asn Ala  
35 40 45

Phe Val Ala Lys Leu Ala Arg Leu Phe Arg Asn Ala Asp Arg Ala Val

50	55	60
Val Ile Val Lys Glu Ser Met Arg Thr Glu Glu Ser Leu Ala Gly Ala 65 70 75 80		
Val Asp Asp Gly Pro Leu Gln Ser Glu Lys Asp Tyr Leu Ala Leu Ala 85 90 95		
Ile Arg Leu Ser Arg Leu Lys Glu Lys Ala Lys Trp Phe His Val Thr 100 105 110		
Glu Gln Glu His Gly Glu Glu Val Trp Leu Asp Tyr Tyr Ile Gly Glu 115 120 125		
Gly Gly Leu Val Ala Val Ser Leu Ser Gln Arg Ser Pro Glu Ala Phe 130 135 140		
Val Asn Ala Glu Tyr Leu Tyr Arg Asn Asp Arg Pro Phe Ser Val Asn 145 150 155 160		
Val Tyr Gly Gly Thr Ala His Gly Glu Asn Tyr Glu Thr Thr Gly Glu 165 170 175		
Tyr Arg Val Val Trp Gln Pro Asp Gly Ser Val Phe Asp Ala Ala Gly 180 185 190		
Arg Gly Lys Ile Gly Glu Asp Val Tyr Glu His Cys Leu Gly Cys Tyr 195 200 205		
Gln Met Ala Gln Val Tyr Leu Ala Lys Tyr Arg Asp Val Ala Asn Asp 210 215 220		
Glu Gln Lys Val Trp Asp Phe Arg Glu Glu Ser Asn Arg Ile Ala Ser 225 230 235 240		
Asp Ser Arg Asp Tyr Val Phe Tyr Gln Asn Met Arg Glu Leu Met Pro 245 250 255		
Arg Gly Met Lys Ala Asn Ser Leu Val Val Gly Tyr Asp Ala Asp Gly 260 265 270		
Leu Pro Gln Lys Val Tyr Trp Ser Phe Asp Asn Gly Lys Lys Arg Gln 275 280 285		
Ser Phe Glu Tyr Tyr Leu Lys Asn Gly Asn Leu Phe Ile Ala Gln Ser 290 295 300		
Ser Thr Val Ala Leu Lys Ala Asp Gly Val Thr Ala Asp Met Gln Thr 305 310 315 320		
Tyr His Ala Gln Gln Thr Trp Tyr Leu Asp Gly Gly Arg Ile Ile Arg 325 330 335		
Glu Glu Lys Gln Gly Asp Arg Leu Pro Asp Phe Pro Leu Asn Leu Glu 340 345 350		
Asp Leu Glu Lys Glu Val Ser Arg Tyr Ala Glu Ala Ala Ala Arg Arg		



355

360

365

Ser Gly Gly Arg Arg Gly Leu Ser His  
370 375

&lt;210&gt; 2459

&lt;211&gt; 1134

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 2459

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atgtttaaaa aattcaaacc ggtactgttg tcattttttg cacttgtatt tgccttttgg 60
ctgggaacgg gtattgccta tgagattaat ccgcgttggg ttttgagcga tacggcaact 120
gaagtaccta aaaatccgaa tgctttttgtg gcgaaacttg cccgcctgtt ccgaaatgcc 180
gacaggggcgg ttgtcatcgt gaaggaatcg ataaggacgg aggaaaatct tgccggaact 240
gtggatgacg gtccgttgca gtcggagaag gattatctcg cgctcgctat ccggctcagt 300
cgtttgaaag aaaaggcgaa atggtttcac gtaacggagc aggaacatgg gaaagaggtt 360
tggctggatt accatatcgg cgagggcggt ttggttgcgg tttcgctttc gcaacgctcg 420
ccggaagcat ttgttaatgc cgaatatctg tatcggaacg atcgccggtt ttctgtaaat 480
gtgtacggcg gaacggttca cggggaaaat tatgaaacga caggagaata tcgggttggt 540
tggcaaccag acggttcggt atttgatgcg gcggggcgcg ggaaaatcgg ggaagatgtt 600
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gtcgcgaatg acgagcagaa ggtttgggac ttccgcaaag agagcaaccg aattgcgctg 720
gactcgcgca attctgtgtt ttatcagaat atgcgggaat tgatgccccg agggatgaag 780
gcgaacagtc ttgtggtcgg ctatgatgcg gacgggtctgc cgcaaaaagt ctattggagt 840
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tatcatgcgc aacagacgtg gtatttggat ggcggggcgga ttgtccgcga agagaaacag 1020
ggagacagac tgcctgattt tcctttgaac ttggaaaatt tggaaaaaga ggtgcgccgt 1080
tatgcagagg ctgcggcgag acgttcggggc ggcaggcgcg acctttctca ctga 1134

```

&lt;210&gt; 2460

&lt;211&gt; 377

&lt;212&gt; PRT

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 2460

```

Met Phe Lys Lys Phe Lys Pro Val Leu Leu Ser Phe Phe Ala Leu Val
  1             5             10             15

Phe Ala Phe Trp Leu Gly Thr Gly Ile Ala Tyr Glu Ile Asn Pro Arg
  20             25             30

Trp Phe Leu Ser Asp Thr Ala Thr Glu Val Pro Lys Asn Pro Asn Ala
  35             40             45

Phe Val Ala Lys Leu Ala Arg Leu Phe Arg Asn Ala Asp Arg Ala Val
  50             55             60

Val Ile Val Lys Glu Ser Ile Arg Thr Glu Glu Asn Leu Ala Gly Thr
  65             70             75             80

Val Asp Asp Gly Pro Leu Gln Ser Glu Lys Asp Tyr Leu Ala Leu Ala
  85             90             95

```

Ile Arg Leu Ser Arg Leu Lys Glu Lys Ala Lys Trp Phe His Val Thr  
 100 105 110  
 Glu Gln Glu His Gly Lys Glu Val Trp Leu Asp Tyr His Ile Gly Glu  
 115 120 125  
 Gly Gly Leu Val Ala Val Ser Leu Ser Gln Arg Ser Pro Glu Ala Phe  
 130 135 140  
 Val Asn Ala Glu Tyr Leu Tyr Arg Asn Asp Arg Pro Phe Ser Val Asn  
 145 150 155 160  
 Val Tyr Gly Gly Thr Val His Gly Glu Asn Tyr Glu Thr Thr Gly Glu  
 165 170 175  
 Tyr Arg Val Val Trp Gln Pro Asp Gly Ser Val Phe Asp Ala Ala Gly  
 180 185 190  
 Arg Gly Lys Ile Gly Glu Asp Val Tyr Glu His Cys Leu Gly Cys Tyr  
 195 200 205  
 Gln Met Ala Gln Val Tyr Leu Ala Lys Tyr Arg Asp Val Ala Asn Asp  
 210 215 220  
 Glu Gln Lys Val Trp Asp Phe Arg Lys Glu Ser Asn Arg Ile Ala Ser  
 225 230 235 240  
 Asp Ser Arg Asn Ser Val Phe Tyr Gln Asn Met Arg Glu Leu Met Pro  
 245 250 255  
 Arg Gly Met Lys Ala Asn Ser Leu Val Val Gly Tyr Asp Ala Asp Gly  
 260 265 270  
 Leu Pro Gln Lys Val Tyr Trp Ser Phe Asp Asn Gly Lys Lys Arg Gln  
 275 280 285  
 Ser Phe Glu Tyr Tyr Leu Lys Asn Gly Asn Leu Phe Ile Ala Gln Ser  
 290 295 300  
 Ser Thr Val Ala Leu Lys Ala Asp Gly Val Thr Ala Asp Met Gln Thr  
 305 310 315 320  
 Tyr His Ala Gln Gln Thr Trp Tyr Leu Asp Gly Gly Arg Ile Val Arg  
 325 330 335  
 Glu Glu Lys Gln Gly Asp Arg Leu Pro Asp Phe Pro Leu Asn Leu Glu  
 340 345 350  
 Asn Leu Glu Lys Glu Val Arg Arg Tyr Ala Glu Ala Ala Ala Arg Arg  
 355 360 365  
 Ser Gly Gly Arg Arg Asp Leu Ser His  
 370 375

<210> 2461

<211> 1125

<212> DNA

<213> Neisseria meningitidis

<400> 2461

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atgtttaaaa aattcaaacc ggtactgttg tcattttttg cacttgtatt tgccttttgg 60
ctgggaacgg gtattgccta tgagattaat ccgcgttggg ttttgagcga tacggcaact 120
gaaaatccga atgcttttgt ggcgaaactt gccgcctgt tccgaaatgc cgacagggcg 180
gttgtcatcg tgaaggaatc gatgaggacg gaggaaagtc ttgccggagc tgtggatgac 240
ggtccgttgc agtcggagaa ggattatctt gcaactcgctg tccggctcag tcgtttgaaa 300
gaaaaggcga aatggtttca cgtaacggag caggaaacatg gggaagaggt ttggctggat 360
tactatatcg gcgagggcgg tttggttgcg gtttcgcttt cgcaacgctc gccggaagcg 420
tttgttaatg ccgaatatct gtatcggaac gatcgctcgt tttctgtaaa tgtgtacggc 480
ggaacggttc acggggaaaa ttatgaaacg acaggagaat atcgggttgt ttggcaaccg 540
gacggttcgg tatttgatgc gtcggggcgc gggaaaatcg gggaagatgt ttatgagcat 600
tgcctcgggt gttatcagat ggcccaggta tatttggcga aatatcgga tgctcgcaat 660
gatgagcaga aggtttggga cttccgcgaa gagagtaacc ggattgcgct ggactcgcg 720
gattctgtgt tttatcagaa tatgcgggaa ttgatgcccc gagggatgaa ggcaaacagt 780
cttgtggtcg gctatgatgc ggacggtctg ccgcagaaa tctattggag tttcgacaat 840
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tcttcgacgg tagcattgaa agcggatggc gtaacggcgg atatgcagac ctatcatcg 960
caacagacgt ggtatttaga tggcgggcgg attgtccgcg aagagaaaca gggggacaga 1020
ctgcctgatt ttcctttgaa cttggaagat ttggaaaaag aggtgagccg ttatgcagag 1080
gctgcggcga gacgttcggg cggcaggcgc gacctttctc actga 1125
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<210> 2462

<211> 374

<212> PRT

<213> Neisseria meningitidis

<400> 2462

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Met Phe Lys Lys Phe Lys Pro Val Leu Leu Ser Phe Phe Ala Leu Val
 1             5             10            15

Phe Ala Phe Trp Leu Gly Thr Gly Ile Ala Tyr Glu Ile Asn Pro Arg
      20             25            30

Trp Phe Leu Ser Asp Thr Ala Thr Glu Asn Pro Asn Ala Phe Val Ala
      35             40            45

Lys Leu Ala Arg Leu Phe Arg Asn Ala Asp Arg Ala Val Val Ile Val
      50             55            60

Lys Glu Ser Met Arg Thr Glu Glu Ser Leu Ala Gly Ala Val Asp Asp
      65             70            75            80

Gly Pro Leu Gln Ser Glu Lys Asp Tyr Leu Ala Leu Ala Val Arg Leu
      85             90            95

Ser Arg Leu Lys Glu Lys Ala Lys Trp Phe His Val Thr Glu Gln Glu
      100            105            110

His Gly Glu Glu Val Trp Leu Asp Tyr Tyr Ile Gly Glu Gly Gly Leu
      115            120            125

Val Ala Val Ser Leu Ser Gln Arg Ser Pro Glu Ala Phe Val Asn Ala
      130            135            140
```

Glu Tyr Leu Tyr Arg Asn Asp Arg Pro Phe Ser Val Asn Val Tyr Gly  
 145 150 155 160  
 Gly Thr Val His Gly Glu Asn Tyr Glu Thr Thr Gly Glu Tyr Arg Val  
 165 170 175  
 Val Trp Gln Pro Asp Gly Ser Val Phe Asp Ala Ser Gly Arg Gly Lys  
 180 185 190  
 Ile Gly Glu Asp Val Tyr Glu His Cys Leu Gly Cys Tyr Gln Met Ala  
 195 200 205  
 Gln Val Tyr Leu Ala Lys Tyr Arg Asp Val Ala Asn Asp Glu Gln Lys  
 210 215 220  
 Val Trp Asp Phe Arg Glu Glu Ser Asn Arg Ile Ala Ser Asp Ser Arg  
 225 230 235 240  
 Asp Ser Val Phe Tyr Gln Asn Met Arg Glu Leu Met Pro Arg Gly Met  
 245 250 255  
 Lys Ala Asn Ser Leu Val Val Gly Tyr Asp Ala Asp Gly Leu Pro Gln  
 260 265 270  
 Lys Val Tyr Trp Ser Phe Asp Asn Gly Lys Lys Arg Gln Ser Phe Glu  
 275 280 285  
 Tyr Tyr Leu Lys Asn Gly Asn Leu Phe Ile Ala Gln Ser Ser Thr Val  
 290 295 300  
 Ala Leu Lys Ala Asp Gly Val Thr Ala Asp Met Gln Thr Tyr His Ala  
 305 310 315 320  
 Gln Gln Thr Trp Tyr Leu Asp Gly Gly Arg Ile Val Arg Glu Glu Lys  
 325 330 335  
 Gln Gly Asp Arg Leu Pro Asp Phe Pro Leu Asn Leu Glu Asp Leu Glu  
 340 345 350  
 Lys Glu Val Ser Arg Tyr Ala Glu Ala Ala Ala Arg Arg Ser Gly Gly  
 355 360 365  
 Arg Arg Asp Leu Ser His  
 370

<210> 2463

<211> 1404

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 2463

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 tgcaccatga ttcctcaata cgagcagccc aaagtcgaag ttgcggaaac cttccaaaac 120  
 gacacatcgg tttcttccat ccgcgcgggtt gatttggtt ggcattgacta ttttgccgac 180  
 ccgcgcctgc aaaagctgat cgacatcgca ctgcagcgca ataccagttt gcgtacagcc 240

```

gtattgaaca gcgaaatota cgcgcaacaa tacatgatcg agcgcaacaa cctcctgccc 300
acgcttgccg ccaatgcgaa cggctcgcgc caaggcagct tgagcggcgg caatgtcagc 360
agcagctaca atgtcggact gggcgcggca tcttacgaac tcgatctgtt cgggcgcgtg 420
cgcagcaaca gcgaagcagc actgcagggc tattttgcca gcgttgccaa ccgcgatgcg 480
gcacatttga ttctgattgc caccgttgcc aaagcctatt tcaacgagcg ttatgccgaa 540
aaagcgatgt ctttggcgca gcggtgtctt aaaacgcgcg aggaaaccta caagctgtcc 600
gaattgcggt acaaggcagg cgtgatttcc gccgtcgcgc tgcgccagca ggaagccttg 660
attgaatctg ccaaagccga ttatgcccat gccgcgcgca gccgcgaaca ggcgcgcaat 720
gccttggcaa ccttgattaa ccgtccgata cccgaagacc tgcccgccgg tttgccgttg 780
gacaagcagt tttttgttga aaaactgcct gccggtttga gttccgaagt attgctcgac 840
cgtcccgaca tccgcgcgcg cgaacacgcg ctcaaacagg caaacgcaa tatcggtgcg 900
gcgcgcgcgc cctttttccc gtccatccgc ctgaccggaa gcgtcggtag gggttctgtc 960
gaattgggcg ggctgttcaa aagcggcacg ggcgtttggg cgttcgctcc gtctattacc 1020
ctgccgattt ttacttgggg aacgaacaag gcgaaccttg atgtggcaaa actgcgcaa 1080
caggcacaaa ttgttgccca tgaatccgcc gtccaatccg cttttcaaga cgtggcaaac 1140
gcattggcgg cgcgcgagca gctggataaa gcctatgacg ctttaagcaa acaaagccgc 1200
gcctctaaaag aagcgttgcg cttggtcgga ctgcgttaca aacacggcgt atccggcgcg 1260
ctcgatttgc tcgatgcgga acgcatcagc tattcggcgg aaggtgcggc tttgtcggca 1320
caactgaccc gcgccgaaaa ccttgccgat ttgtacaagg cgctcgacgg cggattgaaa 1380
cgggataccc aaaccggcaa ataa 1404

```

<210> 2464

<211> 467

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2464

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Met Asn Thr Thr Leu Lys Thr Thr Leu Thr Ser Val Ala Ala Ala Phe
  1              5              10              15

```

```

Ala Leu Ser Ala Cys Thr Met Ile Pro Gln Tyr Glu Gln Pro Lys Val
          20              25              30

```

```

Glu Val Ala Glu Thr Phe Gln Asn Asp Thr Ser Val Ser Ser Ile Arg
          35              40              45

```

```

Ala Val Asp Leu Gly Trp His Asp Tyr Phe Ala Asp Pro Arg Leu Gln
          50              55              60

```

```

Lys Leu Ile Asp Ile Ala Leu Glu Arg Asn Thr Ser Leu Arg Thr Ala
          65              70              75              80

```

```

Val Leu Asn Ser Glu Ile Tyr Arg Lys Gln Tyr Met Ile Glu Arg Asn
          85              90              95

```

```

Asn Leu Leu Pro Thr Leu Ala Ala Asn Ala Asn Gly Ser Arg Gln Gly
          100             105             110

```

```

Ser Leu Ser Gly Gly Asn Val Ser Ser Ser Tyr Asn Val Gly Leu Gly
          115             120             125

```

```

Ala Ala Ser Tyr Glu Leu Asp Leu Phe Gly Arg Val Arg Ser Asn Ser
          130             135             140

```

```

Glu Ala Ala Leu Gln Gly Tyr Phe Ala Ser Val Ala Asn Arg Asp Ala

```

145		150		155		160
Ala His Leu Ile	Leu Ile Ala Thr Val	Ala Lys Ala Tyr Phe Asn Glu				
	165	170		175		
Arg Tyr Ala Glu Lys Ala Met Ser	Leu Ala Gln Arg Val Leu Lys Thr					
	180	185		190		
Arg Glu Glu Thr Tyr Lys Leu Ser	Glu Leu Arg Tyr Lys Ala Gly Val					
	195	200		205		
Ile Ser Ala Val Ala Leu Arg Gln Gln Glu Ala Leu Ile Glu Ser Ala						
210	215	220				
Lys Ala Asp Tyr Ala His Ala Ala Arg Ser Arg Glu Gln Ala Arg Asn						
225	230	235		240		
Ala Leu Ala Thr Leu Ile Asn Arg Pro Ile Pro Glu Asp Leu Pro Ala						
	245	250		255		
Gly Leu Pro Leu Asp Lys Gln Phe Phe Val Glu Lys Leu Pro Ala Gly						
	260	265		270		
Leu Ser Ser Glu Val Leu Leu Asp Arg Pro Asp Ile Arg Ala Ala Glu						
	275	280		285		
His Ala Leu Lys Gln Ala Asn Ala Asn Ile Gly Ala Ala Arg Ala Ala						
290	295	300				
Phe Phe Pro Ser Ile Arg Leu Thr Gly Ser Val Gly Thr Gly Ser Val						
305	310	315		320		
Glu Leu Gly Gly Leu Phe Lys Ser Gly Thr Gly Val Trp Ala Phe Ala						
	325	330		335		
Pro Ser Ile Thr Leu Pro Ile Phe Thr Trp Gly Thr Asn Lys Ala Asn						
	340	345		350		
Leu Asp Val Ala Lys Leu Arg Gln Gln Ala Gln Ile Val Ala Tyr Glu						
	355	360		365		
Ser Ala Val Gln Ser Ala Phe Gln Asp Val Ala Asn Ala Leu Ala Ala						
370	375	380				
Arg Glu Gln Leu Asp Lys Ala Tyr Asp Ala Leu Ser Lys Gln Ser Arg						
385	390	395		400		
Ala Ser Lys Glu Ala Leu Arg Leu Val Gly Leu Arg Tyr Lys His Gly						
	405	410		415		
Val Ser Gly Ala Leu Asp Leu Leu Asp Ala Glu Arg Ile Ser Tyr Ser						
	420	425		430		
Ala Glu Gly Ala Ala Leu Ser Ala Gln Leu Thr Arg Ala Glu Asn Leu						
	435	440		445		
Ala Asp Leu Tyr Lys Ala Leu Asp Gly Gly Leu Lys Arg Asp Thr Gln						

450

455

460

Thr Gly Lys

465

&lt;210&gt; 2465

&lt;211&gt; 1404

&lt;212&gt; DNA

<213> *Neisseria meningitidis*

&lt;400&gt; 2465

```

atggatacta cattgaaaac caccttgact tctgttgag cagcctttgc attgtctgcc 60
tgcaccatga ttccccaata cgagcagccc aaagtcgaag ttgccgaaac gttcaaaaac 120
gataccgccg acagcggcat ccgcgcgcgc gatttaggtt ggcatgacta ttttgccgac 180
ccgcgcctgc aaaagctgat cgacatcgca ctcgagcgca ataccagttt gcgtaccgcc 240
gtattgaaca gcgaaatcta ccgcaaaca tacatgattg agcgcaaca cctcctgccc 300
acgcttgccg ccaatgcgaa cgactcgcg caaggcagct tgagcggcgg caatgtaagc 360
agcagctaca aagtcggact gggcgcgga tcttacgaac tcgatctgtt cgggcgtgta 420
cgcagcagca gcgagggcgc actgcaaggc tatttcgcca gcaccgcca ccgcgatgcg 480
gcacatttga gcctgattgc caccgttgcc aaagcctatt tcaacgaacg ttacgccgaa 540
gaagcgatgt ctttggcgca acgtgttttg aaaacgcgcg aggaaacctt caagctgtcc 600
gaattacgtt acaaggcagg cgtgatttcc gccgtcgccc tacgtcagca ggaagccctg 660
atcgaatctg ccaaagccga ttatgcccat gccgcgcgca gccgcgaaca ggcgcgcaat 720
gccttggaac ccttgattaa ccaaccgata ccgaagacc tgcttgccgg tttgccgctg 780
gacaagcagt tttttgttga aaaactgccg gccggtttga gttccgaagt attgctcgac 840
cgtcccgata tccgtgctgc cgaacacgcg ctcaaacagg caaacgcca tatcggtgcg 900
gcacgcgcgc cctttttccc atccatccgc ctgaccggaa ccgtcggtac ggggttctgcc 960
gaattgggtg ggttggtcaa aagcggcaag ggcgttttgt cgttcgcgcc gtctattacc 1020
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caggtacaaa tcgttgccct tgaatccgcc gtccaatccg catttcaaga cgtggcaaac 1140
gcattggcgg cgcgcgagca gctggataaa gcctatgacg ctttaagcaa acaaagccgc 1200
gcctctaaaag aagcgttgcg cttggtcggc ctgcgttaca agcacggcgt atccggcgcg 1260
ctcgacttgc tcgatgcgga acgcagcagc tatgcggcgg aggggtgcgc tttgtcggca 1320
caactgacct gcgccgaaaa ccttgccgat ttgtacaagg cactcggcgg cggattgaaa 1380
cgggataccc aaaccgacaa ataa                                     1404

```

&lt;210&gt; 2466

&lt;211&gt; 467

&lt;212&gt; PRT

<213> *Neisseria meningitidis*

&lt;400&gt; 2466

```

Met Asp Thr Thr Leu Lys Thr Thr Leu Thr Ser Val Ala Ala Ala Phe
 1              5              10             15
Ala Leu Ser Ala Cys Thr Met Ile Pro Gln Tyr Glu Gln Pro Lys Val
          20              25             30
Glu Val Ala Glu Thr Phe Lys Asn Asp Thr Ala Asp Ser Gly Ile Arg
          35              40             45
Ala Val Asp Leu Gly Trp His Asp Tyr Phe Ala Asp Pro Arg Leu Gln
          50              55             60
Lys Leu Ile Asp Ile Ala Leu Glu Arg Asn Thr Ser Leu Arg Thr Ala

```

65	70	75	80
Val Leu Asn Ser	Glu Ile Tyr Arg	Lys Gln Tyr Met	Ile Glu Arg Asn
	85	90	95
Asn Leu Leu Pro	Thr Leu Ala Ala	Asn Ala Asn Asp	Ser Arg Gln Gly
	100	105	110
Ser Leu Ser Gly	Gly Asn Val Ser	Ser Ser Tyr Lys	Val Gly Leu Gly
	115	120	125
Ala Ala Ser Tyr	Glu Leu Asp Leu	Phe Gly Arg Val	Arg Ser Ser Ser
	130	135	140
Glu Ala Ala Leu	Gln Gly Tyr Phe	Ala Ser Thr Ala	Asn Arg Asp Ala
	145	150	155
Ala His Leu Ser	Leu Ile Ala Thr	Val Ala Lys Ala	Tyr Phe Asn Glu
	165	170	175
Arg Tyr Ala Glu	Glu Ala Met Ser	Leu Ala Gln Arg	Val Leu Lys Thr
	180	185	190
Arg Glu Glu Thr	Tyr Lys Leu Ser	Glu Leu Arg Tyr	Lys Ala Gly Val
	195	200	205
Ile Ser Ala Val	Ala Leu Arg Gln	Gln Glu Ala Leu	Ile Glu Ser Ala
	210	215	220
Lys Ala Asp Tyr	Ala His Ala Ala	Arg Ser Arg Glu	Gln Ala Arg Asn
	225	230	235
Ala Leu Ala Thr	Leu Ile Asn Gln	Pro Ile Pro Glu	Asp Leu Pro Ala
	245	250	255
Gly Leu Pro Leu	Asp Lys Gln Phe	Phe Val Glu Lys	Leu Pro Ala Gly
	260	265	270
Leu Ser Ser Glu	Val Leu Leu Asp	Arg Pro Asp Ile	Arg Ala Ala Glu
	275	280	285
His Ala Leu Lys	Gln Ala Asn Ala	Asn Ile Gly Ala	Ala Arg Ala Ala
	290	295	300
Phe Phe Pro Ser	Ile Arg Leu Thr	Gly Thr Val Gly	Thr Gly Ser Ala
	305	310	315
Glu Leu Gly Gly	Leu Phe Lys Ser	Gly Thr Gly Val	Trp Ser Phe Ala
	325	330	335
Pro Ser Ile Thr	Leu Pro Ile Phe	Thr Trp Gly Thr	Asn Lys Ala Asn
	340	345	350
Leu Asp Val Ala	Lys Leu Arg Gln	Gln Val Gln Ile	Val Ala Tyr Glu
	355	360	365
Ser Ala Val Gln	Ser Ala Phe Gln	Asp Val Ala Asn	Ala Leu Ala Ala



370	375	380
Arg Glu Gln Leu Asp Lys Ala Tyr Asp Ala Leu Ser Lys Gln Ser Arg		
385	390	395 400
Ala Ser Lys Glu Ala Leu Arg Leu Val Gly Leu Arg Tyr Lys His Gly		
	405	410 415
Val Ser Gly Ala Leu Asp Leu Leu Asp Ala Glu Arg Ser Ser Tyr Ala		
	420	425 430
Ala Glu Gly Ala Ala Leu Ser Ala Gln Leu Thr Arg Ala Glu Asn Leu		
	435	440 445
Ala Asp Leu Tyr Lys Ala Leu Gly Gly Gly Leu Lys Arg Asp Thr Gln		
	450	455 460
Thr Asp Lys		
465		

<210> 2467  
 <211> 1404  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2467

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tgcaccatga ttccccaata cgagcagccc aaagtcgaag ttgccgaaac gttcaaaaac	120
gataccgccg acagcggcat ccgtgcggtc gatttgggtt ggcatgacta ttttgccgac	180
ccgcgcctgc aaaagctgat cgacatcgca ctcgagcgca ataccagttt gcgtaccgcc	240
gtattgaaca gcgaaatcta ccgcaaacia tacatgattg agcgcaacia cctcctgccc	300
acgcttgccg ccaatgcgaa cgactcgcgc caaggcagct tgagcggcgg caatgtaagc	360
agcagctaca aagtcggact gggtgcggca tcttacgaac tcgatctgtt cgggcgtgta	420
cgcagcagca gcgaggcggc actgcaaggc tatttcgcca gcaccgcaa ccgcgatgcg	480
gcacatttga gcctgattgc caccgttgcc aaagcctatt tcaacgaacg ttatgccgaa	540
gaagcgatgt ctttggcgca acgtgttttg aaaaacgcgc aggaaaccta caagctgtcc	600
gaattacgtt acaaggcagg cgtgatttcc gccgtcgcgc tacgtcagca ggaagcccta	660
atcgaatctg ccaaagccga ttatgcccat gccgcgcgca gccgcgaaca ggcgcgcaat	720
gccttggaac ccctgattaa ccaaccgata ccgcagcacc tgcccgcgcg tttgccgttg	780
gacaagcagt tttttgttga gaagctgccg gccggtttga gtcccgaaat attgctcgac	840
cgtcccgaata tccgtgctgc cgaacacgcg ctcaaacagg caaacgcaa tatcgggtgcg	900
gcacgcgcgc cttttttccc atccatccgc ctgaccgaa gcgtcgatac gcattctgcc	960
gaattgggcg ggctgttcaa aagcggcacc ggcgtttggt tgttcgcacc ttccattacc	1020
ctgccgattt ttacctgggg tacgaacaag gcgaacctcg atgtagccaa gctgcgccaa	1080
caggcacaaa tcgttgccata tgaagccgcc gtccaatccg catttcaaga cgtggcaaac	1140
gcattgaccg cgcgcgagca gttggataaa gcctatgacg ctttaagcaa acaaagccgc	1200
gcctctaaag aagcgttgcg tttggtcggg ctgcgttaca aacacggcgt atccggcgcg	1260
ctcgacttgc tcgatgcgga acgcagcagc tattcggcgg aaggtgcggc tttgtcggca	1320
caactgaccc gcgccgaaaa ccttgccgat ttgtacaagg cactcggcgg cggattgaaa	1380
cgggataccc aaaccgacaa ataa	1404

<210> 2468  
 <211> 467  
 <212> PRT

<213> Neisseria meningitidis

<400> 2468

Met	Asp	Thr	Thr	Leu	Lys	Thr	Thr	Leu	Thr	Ser	Val	Ala	Ala	Ala	Phe
1				5				10						15	
Ala	Leu	Ser	Ala	Cys	Thr	Met	Ile	Pro	Gln	Tyr	Glu	Gln	Pro	Lys	Val
			20					25					30		
Glu	Val	Ala	Glu	Thr	Phe	Lys	Asn	Asp	Thr	Ala	Asp	Ser	Gly	Ile	Arg
		35					40					45			
Ala	Val	Asp	Leu	Gly	Trp	His	Asp	Tyr	Phe	Ala	Asp	Pro	Arg	Leu	Gln
	50					55					60				
Lys	Leu	Ile	Asp	Ile	Ala	Leu	Glu	Arg	Asn	Thr	Ser	Leu	Arg	Thr	Ala
65					70					75					80
Val	Leu	Asn	Ser	Glu	Ile	Tyr	Arg	Lys	Gln	Tyr	Met	Ile	Glu	Arg	Asn
				85					90					95	
Asn	Leu	Leu	Pro	Thr	Leu	Ala	Ala	Asn	Ala	Asn	Asp	Ser	Arg	Gln	Gly
			100					105						110	
Ser	Leu	Ser	Gly	Gly	Asn	Val	Ser	Ser	Ser	Tyr	Lys	Val	Gly	Leu	Gly
		115					120						125		
Ala	Ala	Ser	Tyr	Glu	Leu	Asp	Leu	Phe	Gly	Arg	Val	Arg	Ser	Ser	Ser
	130					135						140			
Glu	Ala	Ala	Leu	Gln	Gly	Tyr	Phe	Ala	Ser	Thr	Ala	Asn	Arg	Asp	Ala
145					150					155					160
Ala	His	Leu	Ser	Leu	Ile	Ala	Thr	Val	Ala	Lys	Ala	Tyr	Phe	Asn	Glu
				165					170					175	
Arg	Tyr	Ala	Glu	Glu	Ala	Met	Ser	Leu	Ala	Gln	Arg	Val	Leu	Lys	Thr
			180					185						190	
Arg	Glu	Glu	Thr	Tyr	Lys	Leu	Ser	Glu	Leu	Arg	Tyr	Lys	Ala	Gly	Val
		195					200						205		
Ile	Ser	Ala	Val	Ala	Leu	Arg	Gln	Gln	Glu	Ala	Leu	Ile	Glu	Ser	Ala
		210				215					220				
Lys	Ala	Asp	Tyr	Ala	His	Ala	Ala	Arg	Ser	Arg	Glu	Gln	Ala	Arg	Asn
225					230					235					240
Ala	Leu	Ala	Thr	Leu	Ile	Asn	Gln	Pro	Ile	Pro	Asp	Asp	Leu	Pro	Ala
				245					250					255	
Gly	Leu	Pro	Leu	Asp	Lys	Gln	Phe	Phe	Val	Glu	Lys	Leu	Pro	Ala	Gly
			260					265						270	
Leu	Ser	Ser	Glu	Val	Leu	Leu	Asp	Arg	Pro	Asp	Ile	Arg	Ala	Ala	Glu
			275				280						285		

His Ala Leu Lys Gln Ala Asn Ala Asn Ile Gly Ala Ala Arg Ala Ala  
 290 295 300  
 Phe Phe Pro Ser Ile Arg Leu Thr Gly Ser Val Asp Thr His Ser Ala  
 305 310 315 320  
 Glu Leu Gly Gly Leu Phe Lys Ser Gly Thr Gly Val Trp Leu Phe Ala  
 325 330 335  
 Pro Ser Ile Thr Leu Pro Ile Phe Thr Trp Gly Thr Asn Lys Ala Asn  
 340 345 350  
 Leu Asp Val Ala Lys Leu Arg Gln Gln Ala Gln Ile Val Ala Tyr Glu  
 355 360 365  
 Ala Ala Val Gln Ser Ala Phe Gln Asp Val Ala Asn Ala Leu Thr Ala  
 370 375 380  
 Arg Glu Gln Leu Asp Lys Ala Tyr Asp Ala Leu Ser Lys Gln Ser Arg  
 385 390 395 400  
 Ala Ser Lys Glu Ala Leu Arg Leu Val Gly Leu Arg Tyr Lys His Gly  
 405 410 415  
 Val Ser Gly Ala Leu Asp Leu Leu Asp Ala Glu Arg Ser Ser Tyr Ser  
 420 425 430  
 Ala Glu Gly Ala Ala Leu Ser Ala Gln Leu Thr Arg Ala Glu Asn Leu  
 435 440 445  
 Ala Asp Leu Tyr Lys Ala Leu Gly Gly Gly Leu Lys Arg Asp Thr Gln  
 450 455 460  
 Thr Asp Lys  
 465

<210> 2469

<211> 1731

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 2469

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 caacggcagc actacgaacc cggcggcaaa taccacctct tcggcgaccc gcgcggcagc 180  
 gtttccgacc gcaccggcaa aatcaacgtc atccaagact ataccaccca gatgggcaac 240  
 ctgctcatcc aacaggcggc aatccaaggc aatcttggtt acaccgtccg cttttccgga 300  
 cacggacacg aagaacacgc ccccttcgac aaccacgccg ccgacagcgc aagcgaagaa 360  
 aaaggcaacg ttgacgacgg ctttaccgtg taccgggtca actgggaagg acacgaacat 420  
 catcccgcgc atgcctacga cggcccgaag ggccgcaatt accccaaacc tacgggcgca 480  
 cgagacgaat acacctatca cgtcaacggc acagcccga gtatcaaact caatccgacc 540  
 gagaccgcga gcatccggca acgcatattc gacaactaca acaacctcgg cagcaatttc 600  
 tccgaccgcg ccgatgaagc caacagaaaa atgttcgagc acaatgccaa gctcgaccgc 660  
 tggggcaaca gcatggagtt tgtcaacggc gtccgcgccg gcgcgctcaa cccctttatc 720  
 agcgcgggag aagccttggg cataggcgac atactgtacg gaacgcgcta tgccatagac 780  
 aaagccgcga tgcgcaacat cgccccctta cccgccgagg gcaaattcgc cgccatcggc 840

```

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caggaaaaacc ccaatgccgc cgaaccgctc gaagccctgg tcaacgtcct gccgtttgcc 960
aaagtcaaaa acctgacaaa ggcggaacaa ccggggaagg ctgcgggttag tggggatttt 1020
tctaaatcct acacctgtct cttccacggc agcaccttgg tcaaaacggc agacggctac 1080
aaagccattg cccatattca agccggagac cgcgtccttt ccaaggacga ggcaagcgga 1140
gaaacgggat acaaaccgct taccgcccga tacggcaatc cgtatcaaga aaccgtttac 1200
attgaagttt cagacggcat cggcaacagc caaacctga tttccaaccg catccaccgc 1260
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gtcgttcgcg aaggaaagca atatttagat tccgacacag gaaaccatgt ttatgtaaaa 1620
ggagataaag tggttattct aactcctgat ggaagacagg taactcaatt taagaactcg 1680
aaagccaata cgtcaaaaag ggtaaaaaat gggaaatgga caccaaaata a 1731

```

<210> 2470

<211> 576

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2470

```

Val Lys Pro Leu Arg Arg Leu Thr Asn Leu Leu Ala Ala Cys Ala Val
  1                      5                      10                      15

```

```

Ala Ala Val Ala Leu Ile Gln Pro Ala Leu Ala Ala Asp Leu Ala Gln
      20                      25                      30

```

```

Asp Pro Phe Ile Thr Asp Asn Thr Gln Arg Gln His Tyr Glu Pro Gly
      35                      40                      45

```

```

Gly Lys Tyr His Leu Phe Gly Asp Pro Arg Gly Ser Val Ser Asp Arg
      50                      55                      60

```

```

Thr Gly Lys Ile Asn Val Ile Gln Asp Tyr Thr His Gln Met Gly Asn
      65                      70                      75                      80

```

```

Leu Leu Ile Gln Gln Ala Ala Ile Gln Gly Asn Leu Gly Tyr Thr Val
      85                      90                      95

```

```

Arg Phe Ser Gly His Gly His Glu Glu His Ala Pro Phe Asp Asn His
      100                      105                      110

```

```

Ala Ala Asp Ser Ala Ser Glu Glu Lys Gly Asn Val Asp Asp Gly Phe
      115                      120                      125

```

```

Thr Val Tyr Arg Leu Asn Trp Glu Gly His Glu His His Pro Ala Asp
      130                      135                      140

```

```

Ala Tyr Asp Gly Pro Lys Gly Gly Asn Tyr Pro Lys Pro Thr Gly Ala
      145                      150                      155                      160

```

```

Arg Asp Glu Tyr Thr Tyr His Val Asn Gly Thr Ala Arg Ser Ile Lys
      165                      170                      175

```

```

Leu Asn Pro Thr Asp Thr Arg Ser Ile Arg Gln Arg Ile Phe Asp Asn

```

180					185					190					
Tyr	Asn	Asn	Leu	Gly	Ser	Asn	Phe	Ser	Asp	Arg	Ala	Asp	Glu	Ala	Asn
	195						200					205			
Arg	Lys	Met	Phe	Glu	His	Asn	Ala	Lys	Leu	Asp	Arg	Trp	Gly	Asn	Ser
	210					215					220				
Met	Glu	Phe	Val	Asn	Gly	Val	Ala	Ala	Gly	Ala	Leu	Asn	Pro	Phe	Ile
225					230					235					240
Ser	Ala	Gly	Glu	Ala	Leu	Gly	Ile	Gly	Asp	Ile	Leu	Tyr	Gly	Thr	Arg
				245					250					255	
Tyr	Ala	Ile	Asp	Lys	Ala	Ala	Met	Arg	Asn	Ile	Ala	Pro	Leu	Pro	Ala
			260					265					270		
Glu	Gly	Lys	Phe	Ala	Ala	Ile	Gly	Gly	Leu	Gly	Ser	Ala	Ala	Gly	Phe
		275					280					285			
Glu	Lys	Asn	Thr	Arg	Glu	Ala	Val	Asp	Arg	Trp	Ile	Gln	Glu	Asn	Pro
	290					295					300				
Asn	Ala	Ala	Glu	Thr	Val	Glu	Ala	Leu	Val	Asn	Val	Leu	Pro	Phe	Ala
305					310					315					320
Lys	Val	Lys	Asn	Leu	Thr	Lys	Ala	Ala	Lys	Pro	Gly	Lys	Ala	Ala	Val
				325					330					335	
Ser	Gly	Asp	Phe	Ser	Lys	Ser	Tyr	Thr	Cys	Ser	Phe	His	Gly	Ser	Thr
			340					345					350		
Leu	Val	Lys	Thr	Ala	Asp	Gly	Tyr	Lys	Ala	Ile	Ala	His	Ile	Gln	Ala
		355					360					365			
Gly	Asp	Arg	Val	Leu	Ser	Lys	Asp	Glu	Ala	Ser	Gly	Glu	Thr	Gly	Tyr
	370					375					380				
Lys	Pro	Val	Thr	Ala	Arg	Tyr	Gly	Asn	Pro	Tyr	Gln	Glu	Thr	Val	Tyr
385					390					395					400
Ile	Glu	Val	Ser	Asp	Gly	Ile	Gly	Asn	Ser	Gln	Thr	Leu	Ile	Ser	Asn
				405					410					415	
Arg	Ile	His	Pro	Phe	Tyr	Ser	Asp	Gly	Lys	Trp	Ile	Lys	Ala	Glu	Asp
			420					425					430		
Leu	Lys	Ala	Gly	Ser	Arg	Leu	Leu	Ser	Glu	Ser	Gly	Lys	Thr	Gln	Thr
		435					440					445			
Val	Arg	Asn	Ile	Val	Val	Lys	Pro	Lys	Pro	Leu	Lys	Ala	Tyr	Asn	Leu
	450					455					460				
Thr	Val	Ala	Asp	Trp	His	Thr	Tyr	Phe	Val	Lys	Gly	Asn	Gln	Ala	Glu
465					470					475					480
Thr	Glu	Gly	Val	Trp	Val	His	Asn	Asp	Cys	Pro	Pro	Lys	Pro	Lys	Pro

	485		490		495
Thr Asn His	Ala Gln Gln Arg Lys	Glu Glu Ala Lys Asn Asp Ser His			
	500	505	510		
Arg Ser Val Gly Asp Ser Asn Arg Val Val Arg Glu Gly Lys Gln Tyr					
	515	520	525		
Leu Asp Ser Asp Thr Gly Asn His Val Tyr Val Lys Gly Asp Lys Val					
	530	535	540		
Val Ile Leu Thr Pro Asp Gly Arg Gln Val Thr Gln Phe Lys Asn Ser					
545	550	555	560		
Lys Ala Asn Thr Ser Lys Arg Val Lys Asn Gly Lys Trp Thr Pro Lys					
	565	570	575		

<210> 2471  
 <211> 1404  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2471

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ctcatacagc	ccgccctcgc	ggcggacttg	gcgcaagacc	cgttcattac	cgataacgcc	120
caacggcagc	actacgaacc	cggcggcaaa	taccacctct	tcggcgaccc	gcgcggcagc	180
gtttccgacc	gcaccggcaa	aatcaacgtc	atccaagact	ataccaccca	gatgggcaac	240
ctgctcatcc	aacaggcaaa	catcaacggc	acaatcggct	accacacccg	cttttccgga	300
cacggacacg	aagaacacgc	ccccttcgac	aaccacgccg	ccgacagcgc	gagcgaagaa	360
aaaggcaacg	ttgacgaagg	ctttaccgta	taccggctca	actgggaagg	acacgaacat	420
catcccgccg	atgcctacga	cgccccgaag	ggcggcaatt	accccaaacc	tacgggcgca	480
cgagacgaat	acacctatca	cgtcaacggc	acagcccgca	gtatcaaact	caatccgacc	540
gacacccgca	gcatccggca	acgcataatc	gacaattaca	gcaacctcgg	cagcaatttc	600
tccgaccgcg	ccgatgaagc	caacagaaaa	atgttcgagc	acaatgccaa	gctcgaccgc	660
tggggcaaca	gcatggagtt	tatcaacggc	gtcgcgcgcg	gcgcgctcaa	cccctttatc	720
agcgcggggc	aagccttggg	cataggcgac	atactgtacg	gaacgcgcta	tgccatagac	780
aaagccgcaa	tgcgcaacat	cgcccccttg	cccgcgcgag	gcaaattcgc	cgatcatcgc	840
ggcttgggca	gcgtggcggg	ctttgaaaag	aatacgcgcg	aagccgttga	ccggtggata	900
caggaaaatc	ccaatgccgc	cgaaaccgtc	gaagccgtct	tcaacgttgc	cgcagcagcc	960
aaagtcgcga	agttggcaaa	ggcggcaaaa	ccagggaagg	ctgcggttag	cggggatattt	1020
gctgattcct	ataaaaagaa	attggctttg	tctgatagtg	cgagacagtt	atatcaaaat	1080
gcaaagtata	gagaagctct	agatatatac	tatgaagatt	taattagaag	aaaaactgat	1140
ggttcatcaa	aattttattaa	cggcagagaa	attgacgctg	ttacgaatga	tgctttaata	1200
caagccaaaa	gaacaatttc	agcaatagat	aaacctaaaa	atttcttaaa	tcaaaaaaat	1260
agaaaagcaa	ttaaagcaac	catcgaagca	gcaaaccaac	agggaaaacg	tcgagaattt	1320
tggttttaaat	acggtgttca	ttcacaagtt	aagtcataata	ttgaatcaaa	aggcggcatt	1380
gttaaaacag	gtttaggaga	ttaa				1404

<210> 2472  
 <211> 467  
 <212> PRT

<213> Neisseria meningitidis

<400> 2472

Val	Lys	Pro	Leu	Arg	Arg	Leu	Thr	Asn	Leu	Leu	Ala	Ala	Cys	Ala	Val	
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Ala	Ala	Ala	Ala	Leu	Ile	Gln	Pro	Ala	Leu	Ala	Ala	Asp	Leu	Ala	Gln	
			20					25					30			
Asp	Pro	Phe	Ile	Thr	Asp	Asn	Ala	Gln	Arg	Gln	His	Tyr	Glu	Pro	Gly	
		35					40					45				
Gly	Lys	Tyr	His	Leu	Phe	Gly	Asp	Pro	Arg	Gly	Ser	Val	Ser	Asp	Arg	
	50					55					60					
Thr	Gly	Lys	Ile	Asn	Val	Ile	Gln	Asp	Tyr	Thr	His	Gln	Met	Gly	Asn	
	65				70					75					80	
Leu	Leu	Ile	Gln	Gln	Ala	Asn	Ile	Asn	Gly	Thr	Ile	Gly	Tyr	His	Thr	
				85					90					95		
Arg	Phe	Ser	Gly	His	Gly	His	Glu	Glu	His	Ala	Pro	Phe	Asp	Asn	His	
			100					105					110			
Ala	Ala	Asp	Ser	Ala	Ser	Glu	Glu	Lys	Gly	Asn	Val	Asp	Glu	Gly	Phe	
		115					120					125				
Thr	Val	Tyr	Arg	Leu	Asn	Trp	Glu	Gly	His	Glu	His	His	Pro	Ala	Asp	
	130					135						140				
Ala	Tyr	Asp	Gly	Pro	Lys	Gly	Gly	Asn	Tyr	Pro	Lys	Pro	Thr	Gly	Ala	
145					150					155					160	
Arg	Asp	Glu	Tyr	Thr	Tyr	His	Val	Asn	Gly	Thr	Ala	Arg	Ser	Ile	Lys	
			165						170					175		
Leu	Asn	Pro	Thr	Asp	Thr	Arg	Ser	Ile	Arg	Gln	Arg	Ile	Ser	Asp	Asn	
			180					185					190			
Tyr	Ser	Asn	Leu	Gly	Ser	Asn	Phe	Ser	Asp	Arg	Ala	Asp	Glu	Ala	Asn	
		195					200					205				
Arg	Lys	Met	Phe	Glu	His	Asn	Ala	Lys	Leu	Asp	Arg	Trp	Gly	Asn	Ser	
	210					215					220					
Met	Glu	Phe	Ile	Asn	Gly	Val	Ala	Ala	Gly	Ala	Leu	Asn	Pro	Phe	Ile	
225					230					235					240	
Ser	Ala	Gly	Glu	Ala	Leu	Gly	Ile	Gly	Asp	Ile	Leu	Tyr	Gly	Thr	Arg	
			245						250					255		
Tyr	Ala	Ile	Asp	Lys	Ala	Ala	Met	Arg	Asn	Ile	Ala	Pro	Leu	Pro	Ala	
		260						265					270			
Glu	Gly	Lys	Phe	Ala	Val	Ile	Gly	Gly	Leu	Gly	Ser	Val	Ala	Gly	Phe	
		275					280						285			

Glu Lys Asn Thr Arg Glu Ala Val Asp Arg Trp Ile Gln Glu Asn Pro  
290 295 300

Asn Ala Ala Glu Thr Val Glu Ala Val Phe Asn Val Ala Ala Ala Ala  
305 310 315 320

Lys Val Ala Lys Leu Ala Lys Ala Ala Lys Pro Gly Lys Ala Ala Val  
325 330 335

Ser Gly Asp Phe Ala Asp Ser Tyr Lys Lys Lys Leu Ala Leu Ser Asp  
340 345 350

Ser Ala Arg Gln Leu Tyr Gln Asn Ala Lys Tyr Arg Glu Ala Leu Asp  
355 360 365

Ile His Tyr Glu Asp Leu Ile Arg Arg Lys Thr Asp Gly Ser Ser Lys  
370 375 380

Phe Ile Asn Gly Arg Glu Ile Asp Ala Val Thr Asn Asp Ala Leu Ile  
385 390 395 400

Gln Ala Lys Arg Thr Ile Ser Ala Ile Asp Lys Pro Lys Asn Phe Leu  
405 410 415

Asn Gln Lys Asn Arg Lys Gln Ile Lys Ala Thr Ile Glu Ala Ala Asn  
420 425 430

Gln Gln Gly Lys Arg Ala Glu Phe Trp Phe Lys Tyr Gly Val His Ser  
435 440 445

Gln Val Lys Ser Tyr Ile Glu Ser Lys Gly Gly Ile Val Lys Thr Gly  
450 455 460

Leu Gly Asp  
465

<210> 2473

<211> 1497

<212> DNA

<213> Neisseria meningitidis

<400> 2473

gtgaaaccgc tgcgaagact catcaagctc cttgccgcct gtgccgtagc ggcgggccgca 60  
ctcatacagc ccgccctcgc ggcggacttg ggcgaagacc cgttcattac cgataacgcc 120  
caacggcagc actacgaacc cggaggcaaa taccacctct tcggcgaccc gcgcggcagc 180  
gtctccgacc gcaccggtca aatcaacgct atccaagact ataccacccg gatgggcaac 240  
ctgctcatcc agcaggcaaa catcaacggc acaatcggct accacaccg cttttccgga 300  
cacggatacg aagaacacgc ccccttcgac aaccacgccg ccgacagcgc gagcgaagaa 360  
aaaggcaacg ttgacgaagg ctttaccgta taccgggtca actgggaagg acacgaacat 420  
catcccgccg atgcctacga cggcccgaag ggcggaatt accccaaacc tacgggtgca 480  
cgcgacgaat acacctatca cgtcaacggc acagcacgca gcatcaaact caatccgacc 540  
gacaccgcga gcatccggca acgcatatcc gacaattaca gcaacctcg cagcaatttc 600  
tccgaccgcg ccgatgaagc caacagaaaa atgttcgagc acaatgccaa gctcgaccgc 660  
tggggcaaca gcatggagtt tatcaacggc gtgcgcgccg gcgcgctcaa cccctttatc 720  
agcgcgggag aagccttggg cataggcgac atactgtacg gaacgcgcta tgccatagac 780  
aaagccgcaa tgcgcaacat cgcccccttg cccgccgagg gcaaattcgc cgtcatcggc 840



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ggcttgggca gcgtggcggg ctttgaaaaa aatacgcgcg aagccgttga ccggtggata 900
caggaaaaacc ccaatgccgc cgaaaccgtc gaagccctgg tcaacgtcct gccgtttgcc 960
aaagtcaaaa acctgacaaa ggcggaacaa ccggggaagg ctgcggttag cggggatttt 1020
tctgctgcat acaatacaag aacaactaga aaagttaacta cagaaacaga ggggttaaat 1080
agaatcagac agaaccagaa aaatagtaat atacatgaga aaaattatgg aagagataat 1140
cctaatacata ttaatgtttt atctggaaat tctatacaac atatactgta tggagatgaa 1200
gcaggaggtg ggcatctttt tcctggcaaa cctggtaaga caacattccc ccaacattgg 1260
tcagccagta aaataactca tgaaattagt gatatcgta catcccaaaa aacgcaatgg 1320
tatgcacaga ctggaacagg cggcaaatat attgctaaag gaagaccagc taggtgggta 1380
tcatatgaaa cgagagatgg aattcgtatc agaacagttt atgaacctgc aacaggaaaa 1440
gtggtaactg cattccccga tagaacctct aatcccaaat ataacctgt aaaataa 1497

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<210> 2474

<211> 498

<212> PRT

<213> Neisseria meningitidis

<400> 2474

```

Val Lys Pro Leu Arg Arg Leu Ile Lys Leu Leu Ala Ala Cys Ala Val
  1              5              10              15

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```

Ala Ala Ala Ala Leu Ile Gln Pro Ala Leu Ala Ala Asp Leu Ala Gln
      20              25              30

```

```

Asp Pro Phe Ile Thr Asp Asn Ala Gln Arg Gln His Tyr Glu Pro Gly
      35              40              45

```

```

Gly Lys Tyr His Leu Phe Gly Asp Pro Arg Gly Ser Val Ser Asp Arg
      50              55              60

```

```

Thr Gly Gln Ile Asn Val Ile Gln Asp Tyr Thr His Arg Met Gly Asn
      65              70              75              80

```

```

Leu Leu Ile Gln Gln Ala Asn Ile Asn Gly Thr Ile Gly Tyr His Thr
      85              90              95

```

```

Arg Phe Ser Gly His Gly Tyr Glu Glu His Ala Pro Phe Asp Asn His
      100             105             110

```

```

Ala Ala Asp Ser Ala Ser Glu Glu Lys Gly Asn Val Asp Glu Gly Phe
      115             120             125

```

```

Thr Val Tyr Arg Leu Asn Trp Glu Gly His Glu His His Pro Ala Asp
      130             135             140

```

```

Ala Tyr Asp Gly Pro Lys Gly Gly Asn Tyr Pro Lys Pro Thr Gly Ala
      145             150             155             160

```

```

Arg Asp Glu Tyr Thr Tyr His Val Asn Gly Thr Ala Arg Ser Ile Lys
      165             170             175

```

```

Leu Asn Pro Thr Asp Thr Arg Ser Ile Arg Gln Arg Ile Ser Asp Asn
      180             185             190

```

```

Tyr Ser Asn Leu Gly Ser Asn Phe Ser Asp Arg Ala Asp Glu Ala Asn
      195             200             205

```

Arg Lys Met Phe Glu His Asn Ala Lys Leu Asp Arg Trp Gly Asn Ser  
 210 215 220  
 Met Glu Phe Ile Asn Gly Val Ala Ala Gly Ala Leu Asn Pro Phe Ile  
 225 230 235 240  
 Ser Ala Gly Glu Ala Leu Gly Ile Gly Asp Ile Leu Tyr Gly Thr Arg  
 245 250 255  
 Tyr Ala Ile Asp Lys Ala Ala Met Arg Asn Ile Ala Pro Leu Pro Ala  
 260 265 270  
 Glu Gly Lys Phe Ala Val Ile Gly Gly Leu Gly Ser Val Ala Gly Phe  
 275 280 285  
 Glu Lys Asn Thr Arg Glu Ala Val Asp Arg Trp Ile Gln Glu Asn Pro  
 290 295 300  
 Asn Ala Ala Glu Thr Val Glu Ala Leu Val Asn Val Leu Pro Phe Ala  
 305 310 315 320  
 Lys Val Lys Asn Leu Thr Lys Ala Ala Lys Pro Gly Lys Ala Ala Val  
 325 330 335  
 Ser Gly Asp Phe Ser Ala Ala Tyr Asn Thr Arg Thr Thr Arg Lys Val  
 340 345 350  
 Thr Thr Glu Thr Glu Gly Leu Asn Arg Ile Arg Gln Asn Gln Lys Asn  
 355 360 365  
 Ser Asn Ile His Glu Lys Asn Tyr Gly Arg Asp Asn Pro Asn His Ile  
 370 375 380  
 Asn Val Leu Ser Gly Asn Ser Ile Gln His Ile Leu Tyr Gly Asp Glu  
 385 390 395 400  
 Ala Gly Gly Gly His Leu Phe Pro Gly Lys Pro Gly Lys Thr Thr Phe  
 405 410 415  
 Pro Gln His Trp Ser Ala Ser Lys Ile Thr His Glu Ile Ser Asp Ile  
 420 425 430  
 Val Thr Ser Pro Lys Thr Gln Trp Tyr Ala Gln Thr Gly Thr Gly Gly  
 435 440 445  
 Lys Tyr Ile Ala Lys Gly Arg Pro Ala Arg Trp Val Ser Tyr Glu Thr  
 450 455 460  
 Arg Asp Gly Ile Arg Ile Arg Thr Val Tyr Glu Pro Ala Thr Gly Lys  
 465 470 475 480  
 Val Val Thr Ala Phe Pro Asp Arg Thr Ser Asn Pro Lys Tyr Asn Pro  
 485 490 495

Val Lys

<210> 2475  
<211> 255  
<212> DNA  
<213> *Neisseria gonorrhoeae*

<400> 2475  
gattttcgag cgttttcatg cgagaacggt ttgtctgtgc gcgtccgcaa tttggacggc 60  
ggcaaaatcg cgttgccggt ggacggcagg cgtgccgtcc tctcttcoga cgttgccgca 120  
tccggcgaac gctataccgc cgaacacggt ttgttcggaa acggaaccga gtggcaccag 180  
aaaggcggcg aagccttttt cggctttacc gatgcctacg gcaattcggc cgaaacttcc 240  
tgccgcgccc gttaa 255

<210> 2476  
<211> 84  
<212> PRT  
<213> *Neisseria gonorrhoeae*

<400> 2476  
Asp Phe Arg Ala Phe Ser Cys Glu Asn Gly Leu Ser Val Arg Val Arg  
1 5 10 15  
Asn Leu Asp Gly Gly Lys Ile Ala Leu Arg Leu Asp Gly Arg Arg Ala  
20 25 30  
Val Leu Ser Ser Asp Val Ala Ala Ser Gly Glu Arg Tyr Thr Ala Glu  
35 40 45  
His Gly Leu Phe Gly Asn Gly Thr Glu Trp His Gln Lys Gly Gly Glu  
50 55 60  
Ala Phe Phe Gly Phe Thr Asp Ala Tyr Gly Asn Ser Val Glu Thr Ser  
65 70 75 80  
Cys Arg Ala Arg

<210> 2477  
<211> 381  
<212> DNA  
<213> *Neisseria meningitidis*

<400> 2477  
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ccggaggcgt atgatgacgg cggacgcggg catatgccgc ccgttcaaaa ccaagccggc 120  
acggacgatt ttcgggcgtt ttctgcgag aacggtttgt ctgtgcgcgt ccgccatttg 180  
gacagcgga aagtcgcgtt gcggctggac ggcaggcgtg ccgtcctctc ttccgacgtt 240  
gccgcacccg gcgaacgcta taccgcgcaa cacggtttgt tcggaaacgc aaccgagtgg 300  
caccagaaag gcggcgaagc ctttttcggc tttaccgatg cctacggcaa ttcggtcgaa 360  
acttctgcc gcgcccgtta a 381

<210> 2478

<211> 126  
<212> PRT  
<213> Neisseria meningitidis

<400> 2478

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Ala	Cys	Ala	Val	Pro	Glu	Ala	Tyr	Asp	Asp	Gly	Gly	Arg	Gly	His	Met
			20					25					30		
Pro	Pro	Val	Gln	Asn	Gln	Ala	Gly	Thr	Asp	Asp	Phe	Arg	Ala	Phe	Ser
			35				40					45			
Cys	Glu	Asn	Gly	Leu	Ser	Val	Arg	Val	Arg	His	Leu	Asp	Ser	Gly	Lys
	50					55					60				
Val	Ala	Leu	Arg	Leu	Asp	Gly	Arg	Arg	Ala	Val	Leu	Ser	Ser	Asp	Val
	65				70					75					80
Ala	Ala	Ser	Gly	Glu	Arg	Tyr	Thr	Ala	Glu	His	Gly	Leu	Phe	Gly	Asn
				85					90					95	
Ala	Thr	Glu	Trp	His	Gln	Lys	Gly	Gly	Glu	Ala	Phe	Phe	Gly	Phe	Thr
			100					105					110		
Asp	Ala	Tyr	Gly	Asn	Ser	Val	Glu	Thr	Ser	Cys	Arg	Ala	Arg		
			115				120					125			

<210> 2479  
<211> 381  
<212> DNA  
<213> Neisseria meningitidis

<400> 2479

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acggcagatt	ttcgggcatt	ttcctgcgag	aacggtttgt	ctgtgcacgt	ccgccgtttg	180
gacggcggca	gaatcgcgtt	gcggttgac	ggcaggcgtg	ccgtcctctc	ttccgacgtt	240
gccgcatccg	gcgaacgcta	taccgccgaa	cacggtttgt	tcggaaacgg	aaccgagtgg	300
catcagaaag	gcggcgaagc	ctttttcggc	tttaccgatg	cctacggcaa	ttcggtcgaa	360
acctcctgcc	gcgcccgcta	a				381

<210> 2480  
<211> 126  
<212> PRT  
<213> Neisseria meningitidis

<400> 2480

Met	Asn	Ile	Arg	Phe	Phe	Ala	Leu	Thr	Val	Pro	Val	Leu	Ser	Leu	Ala
1				5				10						15	
Ala	Cys	Ala	Val	Pro	Glu	Ala	Tyr	Asp	Asp	Gly	Gly	Arg	Gly	His	Met
			20					25					30		

Pro Pro Val Gln Asn Gln Ala Gly Thr Ala Asp Phe Arg Ala Phe Ser  
           35                          40                          45  
 Cys Glu Asn Gly Leu Ser Val His Val Arg Arg Leu Asp Gly Gly Arg  
           50                          55                          60  
 Ile Ala Leu Arg Leu Asp Gly Arg Arg Ala Val Leu Ser Ser Asp Val  
           65                          70                          75                          80  
 Ala Ala Ser Gly Glu Arg Tyr Thr Ala Glu His Gly Leu Phe Gly Asn  
                           85                          90                          95  
 Gly Thr Glu Trp His Gln Lys Gly Gly Glu Ala Phe Phe Gly Phe Thr  
                           100                          105                          110  
 Asp Ala Tyr Gly Asn Ser Val Glu Thr Ser Cys Arg Ala Arg  
           115                          120                          125

<210> 2481

<211> 1476

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 2481

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ctgccggtgc aatccatccg tacgatggcg gaggtttacg gtcagattaa ggcaaaactac 180
tatcatgaca aaccgatgc cgatttggtt gaaggtgcga tgaaggggat ggtggccggt 240
ttggatccgc attccgaata tatggataaa aaaggttatg ccgagataaa ggagtccacc 300
agcggcgaat ttggcggtt ggggatggaa atcgggcagg aagacgggtt tgtcaaagtg 360
gttcgccga ttgaggacac gcctgccgaa cgggcggagg tgaaaagcgg cgatttcatt 420
gtgaaaatcg ataattgttc gacgcgcggt atgacgggtc gcgaagcggg gaaaaaaatg 480
cggggcaagc cgggtacgaa gattactttg acgttgtcgc gcaaaaatgc cgacaagccg 540
atagtcgtca acctgacccg tgccattatt aaagtgaata gcgtccgcca tcacctgatc 600
gaacccgatt acggctatat ccgcgtgtcg cagttccaag agcggacggt cgaaagcgtc 660
aataaccgcg caaaagagct ggtaaaggaa aataaaggaa aaccggtcaa ggggctggtg 720
ttggatttgc gcgacgacct cggcggtt ttgaccggcg cggtcggcgt gtcggcggtg 780
tttctgccgt ctgaagcggg cgctcgtcagc accaaggac gcgacggcaa agacggcatg 840
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gcgtcggaga ttgtcgccgg cgattgcag gaccacaaac gcgcgggtcat cgtcggtaacg 1020
cagagcttcg gtaaagggtc ggttcagact ttgattcctt tgtccaacgg cagcgcggtc 1080
aagttgacga ccgccctgta ttacacggc aacgaccgtt ccattcaggc acaggggatt 1140
gttcccgatg tcgaagtaaa agataaggaa cgtacttttg aaagccgcga ggcgacctg 1200
gtcggacaca tcggcaatcc cttgggcggc gaggatgtga acagtgaaac ccttgccgta 1260
ccgcttgaaa aagatgcgga taagcccgt gcaaaaagaaa aaggtaaaaa gaaaaaggac 1320
gaggatttgt cttcaaggcg gattccgaac cctgcgaaaag acgatcagtt gcgtaaggct 1380
ttgatttgg tcaagtcgcc cgagcagtg cagaagctt tggggctggc ggcgaaaaaa 1440
ccggtttcaa ataaagataa aaaagataag aagtag 1476

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<210> 2482

<211> 491

<212> PRT

<213> *Neisseria gonorrhoeae*

<400> 2482

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Ile	Ser	Gly	Val	Ala	Val	Ser	Leu	Ala	Val	Gln	Gly	Phe	Ala	Ala	Glu	
			20					25					30			
Lys	Asp	Gly	Arg	Asp	Asn	Glu	Val	Leu	Pro	Val	Gln	Ser	Ile	Arg	Thr	
		35					40					45				
Met	Ala	Glu	Val	Tyr	Gly	Gln	Ile	Lys	Ala	Asn	Tyr	Tyr	His	Asp	Lys	
	50					55					60					
Pro	Asp	Ala	Asp	Leu	Phe	Glu	Gly	Ala	Met	Lys	Gly	Met	Val	Ala	Gly	
65					70					75					80	
Leu	Asp	Pro	His	Ser	Glu	Tyr	Met	Asp	Lys	Lys	Gly	Tyr	Ala	Glu	Ile	
				85					90					95		
Lys	Glu	Ser	Thr	Ser	Gly	Glu	Phe	Gly	Gly	Leu	Gly	Met	Glu	Ile	Gly	
			100					105					110			
Gln	Glu	Asp	Gly	Phe	Val	Lys	Val	Val	Ser	Pro	Ile	Glu	Asp	Thr	Pro	
		115					120					125				
Ala	Glu	Arg	Ala	Glu	Val	Lys	Ser	Gly	Asp	Phe	Ile	Val	Lys	Ile	Asp	
	130					135					140					
Asn	Val	Ser	Thr	Arg	Gly	Met	Thr	Val	Ser	Glu	Ala	Val	Lys	Lys	Met	
145					150					155					160	
Arg	Gly	Lys	Pro	Gly	Thr	Lys	Ile	Thr	Leu	Thr	Leu	Ser	Arg	Lys	Asn	
				165					170					175		
Ala	Asp	Lys	Pro	Ile	Val	Val	Asn	Leu	Thr	Arg	Ala	Ile	Ile	Lys	Val	
			180					185					190			
Lys	Ser	Val	Arg	His	His	Leu	Ile	Glu	Pro	Asp	Tyr	Gly	Tyr	Ile	Arg	
		195					200					205				
Val	Ser	Gln	Phe	Gln	Glu	Arg	Thr	Val	Glu	Ser	Val	Asn	Thr	Ala	Ala	
		210				215						220				
Lys	Glu	Leu	Val	Lys	Glu	Asn	Lys	Gly	Lys	Pro	Leu	Lys	Gly	Leu	Val	
225					230					235					240	
Leu	Asp	Leu	Arg	Asp	Asp	Pro	Gly	Gly	Leu	Leu	Thr	Gly	Ala	Val	Gly	
			245					250						255		
Val	Ser	Ala	Ala	Phe	Leu	Pro	Ser	Glu	Ala	Val	Val	Val	Ser	Thr	Lys	
			260					265						270		
Gly	Arg	Asp	Gly	Lys	Asp	Gly	Met	Val	Leu	Lys	Ala	Val	Pro	Glu	Asp	
		275					280					285				
Tyr	Val	Tyr	Gly	Met	Gly	Gly	Asp	Pro	Leu	Ala	Gly	Ile	Pro	Ala	Glu	

290	295	300
Leu Lys Thr Ile Pro Met Thr Val Leu Val Asn Ser Gly Ser Ala Ser		
305	310	315 320
Ala Ser Glu Ile Val Ala Gly Ala Leu Gln Asp His Lys Arg Ala Val		
	325 330	335
Ile Val Gly Thr Gln Ser Phe Gly Lys Gly Ser Val Gln Thr Leu Ile		
	340 345	350
Pro Leu Ser Asn Gly Ser Ala Val Lys Leu Thr Thr Ala Leu Tyr Tyr		
	355 360	365
Thr Pro Asn Asp Arg Ser Ile Gln Ala Gln Gly Ile Val Pro Asp Val		
	370 375	380
Glu Val Lys Asp Lys Glu Arg Thr Phe Glu Ser Arg Glu Ala Asp Leu		
385	390 395	400
Val Gly His Ile Gly Asn Pro Leu Gly Gly Glu Asp Val Asn Ser Glu		
	405 410	415
Thr Leu Ala Val Pro Leu Glu Lys Asp Ala Asp Lys Pro Ala Ala Lys		
	420 425	430
Glu Lys Gly Lys Lys Lys Lys Asp Glu Asp Leu Ser Ser Arg Arg Ile		
	435 440	445
Pro Asn Pro Ala Lys Asp Asp Gln Leu Arg Lys Ala Leu Asp Leu Val		
	450 455	460
Lys Ser Pro Glu Gln Trp Gln Lys Ser Leu Gly Leu Ala Ala Lys Lys		
465	470 475	480
Pro Val Ser Asn Lys Asp Lys Lys Asp Lys Lys		
	485 490	

<210> 2483  
 <211> 1485  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2483  
 atgtcgaaac ctgttttttaa gaaaatcgca cttttatactt tgggtgcaat cagcggcgtg 60  
 gccgtcagtc tggcgggtgca gggttttgccc gccgagaagg acaggcggga taacgaagtc 120  
 ctgccgggtgc aatccatccg cacaatggcg gaggtttacg gtcaaataca ggcaaaactac 180  
 tatcaggaca aaccgatgc cgatttggtt gaaggtgcga tgaagggtat ggtggccggt 240  
 ttggatccgc attccgaata tatggataaa aaaggttatg ccgagataaa ggagtccacc 300  
 agcggcgaat ttggcggctt ggggatggaa atcgggcagg aagacggatt tgtcaaagt 360  
 gtttcgccga ttgaggacac gcctgcggaa cgggcggggg tgaaaagcgg cgatttcatt 420  
 gtgaaaatcg ataattgttc gacacgcggc atgacggtca gcgaagcggg gaagaaaatg 480  
 cggggcaagc cgggtacgaa gattactttg acgctgtcgc gcaaaaatgc cgacaagccg 540  
 atagtcgtca acctgacccg tgccattatt aaagtgaata gcgtccgcca tcacctgatc 600  
 gaacccgatt acggctatat ccgcgtgtcg cagttccaag agcggacggg cgaaagcgtc 660

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aataccgccg caaaagagct ggtaaaggaa aataaaggaa aaccgctcaa ggggctggtg 720
ttggatttgc gcgacgaccc cggcgggctt ttgactggcg cggtcggcgt gtcggcgcca 780
tttctgccgt ctgaagcagt cgtcgtcagc accaaggac gcgacggcaa agaccgcatg 840.
gtactgaaag ccattcctga agattatgtg tacgggatgg gcggcgattc gttggcgggc 900
attcctgccg agttgaaaac cataccgatg acggtattgg tcaattccgg ttcggcttcc 960
gcgtcggaga ttgtcgcagg tgcattgcag gatcataaac gcgcggtcac cgtcggtagc 1020
cagagcttcg gcaaagggtt gggttcagact ttgattcctt tgtccaacgg cagcgcggtc 1080
aagctgacaa cggcactgta ttatacgccg aacgaccgtt ctattcaggc gcaggggatt 1140
gttcccgatg tcgaagtaaa agataaggaa cgcatttttg aaagccgcga ggcggatttg 1200
gtcggacaca tcggcaatcc cttgggcggc gaggatgtga acggtgaaac ccttgccgtg 1260
ccgcttgaaa aagatgcgga taagcccgtt gtaaaagaaa aaggtaaaaa gaaaaaggac 1320
gaggatttgt cttcaaggcg gattcccaac cctgccaaag acgaccagtt gcggaaagct 1380
ttggatttag tcaagtcgcc cgagcagtgg cagaagtctt tggggctggc ggcgaaaaag 1440
ccggtttcaa ataaagataa gaaagataaa aaagataaga agtag 1485

```

<210> 2484

<211> 494

<212> PRT

<213> *Neisseria meningitidis*

<400> 2484

```

Met Ser Lys Pro Val Phe Lys Lys Ile Ala Leu Tyr Thr Leu Gly Ala
  1              5              10              15

```

```

Ile Ser Gly Val Ala Val Ser Leu Ala Val Gln Gly Phe Ala Ala Glu
      20              25              30

```

```

Lys Asp Arg Arg Asp Asn Glu Val Leu Pro Val Gln Ser Ile Arg Thr
      35              40              45

```

```

Met Ala Glu Val Tyr Gly Gln Ile Lys Ala Asn Tyr Tyr Gln Asp Lys
      50              55              60

```

```

Pro Asp Ala Asp Leu Phe Glu Gly Ala Met Lys Gly Met Val Ala Gly
      65              70              75              80

```

```

Leu Asp Pro His Ser Glu Tyr Met Asp Lys Lys Gly Tyr Ala Glu Ile
      85              90              95

```

```

Lys Glu Ser Thr Ser Gly Glu Phe Gly Gly Leu Gly Met Glu Ile Gly
      100              105              110

```

```

Gln Glu Asp Gly Phe Val Lys Val Val Ser Pro Ile Glu Asp Thr Pro
      115              120              125

```

```

Ala Glu Arg Ala Gly Val Lys Ser Gly Asp Phe Ile Val Lys Ile Asp
      130              135              140

```

```

Asn Val Ser Thr Arg Gly Met Thr Val Ser Glu Ala Val Lys Lys Met
      145              150              155              160

```

```

Arg Gly Lys Pro Gly Thr Lys Ile Thr Leu Thr Leu Ser Arg Lys Asn
      165              170              175

```

```

Ala Asp Lys Pro Ile Val Val Asn Leu Thr Arg Ala Ile Ile Lys Val
      180              185              190

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Lys Ser Val Arg His His Leu Ile Glu Pro Asp Tyr Gly Tyr Ile Arg  
 195 200 205  
 Val Ser Gln Phe Gln Glu Arg Thr Val Glu Ser Val Asn Thr Ala Ala  
 210 215 220  
 Lys Glu Leu Val Lys Glu Asn Lys Gly Lys Pro Leu Lys Gly Leu Val  
 225 230 235 240  
 Leu Asp Leu Arg Asp Asp Pro Gly Gly Leu Leu Thr Gly Ala Val Gly  
 245 250 255  
 Val Ser Ala Ala Phe Leu Pro Ser Glu Ala Val Val Val Ser Thr Lys  
 260 265 270  
 Gly Arg Asp Gly Lys Asp Arg Met Val Leu Lys Ala Ile Pro Glu Asp  
 275 280 285  
 Tyr Val Tyr Gly Met Gly Gly Asp Ser Leu Ala Gly Ile Pro Ala Glu  
 290 295 300  
 Leu Lys Thr Ile Pro Met Thr Val Leu Val Asn Ser Gly Ser Ala Ser  
 305 310 315 320  
 Ala Ser Glu Ile Val Ala Gly Ala Leu Gln Asp His Lys Arg Ala Val  
 325 330 335  
 Ile Val Gly Thr Gln Ser Phe Gly Lys Gly Ser Val Gln Thr Leu Ile  
 340 345 350  
 Pro Leu Ser Asn Gly Ser Ala Val Lys Leu Thr Thr Ala Leu Tyr Tyr  
 355 360 365  
 Thr Pro Asn Asp Arg Ser Ile Gln Ala Gln Gly Ile Val Pro Asp Val  
 370 375 380  
 Glu Val Lys Asp Lys Glu Arg Ile Phe Glu Ser Arg Glu Ala Asp Leu  
 385 390 395 400  
 Val Gly His Ile Gly Asn Pro Leu Gly Gly Glu Asp Val Asn Gly Glu  
 405 410 415  
 Thr Leu Ala Val Pro Leu Glu Lys Asp Ala Asp Lys Pro Ala Val Lys  
 420 425 430  
 Glu Lys Gly Lys Lys Lys Lys Asp Glu Asp Leu Ser Ser Arg Arg Ile  
 435 440 445  
 Pro Asn Pro Ala Lys Asp Asp Gln Leu Arg Lys Ala Leu Asp Leu Val  
 450 455 460  
 Lys Ser Pro Glu Gln Trp Gln Lys Ser Leu Gly Leu Ala Ala Lys Lys  
 465 470 475 480  
 Pro Val Ser Asn Lys Asp Lys Lys Asp Lys Lys Asp Lys Lys

<210> 2485  
 <211> 1485  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 2485  
 atgtcgaaac ctgttttttaa gaaaatcgca ctttatactt tgggtgcaat cagcggcgtg 60  
 gccgtcagtc tggcgggtgca gggttttgcc gccgagaagg acaggcggga taacgaagtc 120  
 ctgccggtgc aatccatccg cacaatggcg gaggtttacg gtcaaataca ggcaaaactac 180  
 tatcaggaca aaccgatgc cgatttggtt gaagggtgca tgaagggtat ggtggccggt 240  
 ttggatccgc attccgaata tatggataaa aaagggtatg ccgagataaa ggagtcacc 300  
 agcggcgaat ttggcggctt ggggatggaa atcgggcagg aagacggatt tgtcaaagt 360  
 gtttcgccga ttgaggacac gcctgcggaa cgggcggggg tgaaaagcgg cgatttcatt 420  
 gtgaaaatcg ataattgttc gacacgcggc atgacgggtc gcgaagcggg gaagaaaatg 480  
 cggggcaagc cgggtacgaa gattactttg acgctgtcgc gcaaaaatgc cgacaagccg 540  
 atagtcgtca acctgacccg tgccattatt aaagtgaata gcgtccgcca tcacctgac 600  
 gaaccgcgatt acggctatat ccgcgtgtcg cagttccaag agcggacggg cgaaagcgtc 660  
 aataccgccg caaaagagct ggtaaaggaa aataaaggaa aaccgctcaa ggggctggtg 720  
 ttggatttgc gcgacgaccc cggcgggctt ttgactggcg cggtcggcgt gtcggcggca 780  
 tttctgccgt ctgaagcagt cgtcgtcagc accaaggac gcgacggcaa agaccgcatg 840  
 gtactgaaaag cggttcctga agattatgtg tacgggatgg gcggcgattc gttggcgggc 900  
 attcctgccg agttgaaaac cataccgatg acggtattgg tcaattccgg ttcggcttcc 960  
 gcgtcggaga ttgtcgcagg tgcattgcag gatcataaac gcgcgggtcat cgtcggtagc 1020  
 cagagcttcg gcaaagggtc gggtcagact ttgattcctt tgtccaacgg cagcgcggtc 1080  
 aagctgacaa cggcactgta ttatacgccg aacgaccgtt ctattcaggc gcaggggatt 1140  
 gttcccgatg tcgaagtaaa agataaggaa cgcatttttg aaagccgcga ggccgatttg 1200  
 gtcggacaca tcggcaatcc tttgggcggc gaggatgtga acagtgaac ccttgccgtg 1260  
 ccgcttgaaa aagatgcgga taagcccgtt gtaaaagaaa aaggtaaaaa gaaaaaggac 1320  
 gaggatttgt cttcaaggcg gattcccaac cctgccaaaag acgaccagtt gcggaaagct 1380  
 ttggatttag tcaagtcgcc cgagcagtgg cagaagtctt tggggctggc ggcgaaaaag 1440  
 ccggtttcaa ataaagataa gaaagataaa aaagataaga agtag 1485

<210> 2486  
 <211> 494  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 2486  
 Met Ser Lys Pro Val Phe Lys Lys Ile Ala Leu Tyr Thr Leu Gly Ala  
 1 5 10 15  
 Ile Ser Gly Val Ala Val Ser Leu Ala Val Gln Gly Phe Ala Ala Glu  
 20 25 30  
 Lys Asp Arg Arg Asp Asn Glu Val Leu Pro Val Gln Ser Ile Arg Thr  
 35 40 45  
 Met Ala Glu Val Tyr Gly Gln Ile Lys Ala Asn Tyr Tyr Gln Asp Lys  
 50 55 60  
 Pro Asp Ala Asp Leu Phe Glu Gly Ala Met Lys Gly Met Val Ala Gly  
 65 70 75 80

Leu	Asp	Pro	His	Ser 85	Glu	Tyr	Met	Asp	Lys 90	Lys	Gly	Tyr	Ala	Glu	Ile
Lys	Glu	Ser	Thr 100	Ser	Gly	Glu	Phe	Gly 105	Gly	Leu	Gly	Met	Glu 110	Ile	Gly
Gln	Glu	Asp 115	Gly	Phe	Val	Lys	Val 120	Val	Ser	Pro	Ile	Glu 125	Asp	Thr	Pro
Ala	Glu 130	Arg	Ala	Gly	Val	Lys 135	Ser	Gly	Asp	Phe	Ile 140	Val	Lys	Ile	Asp
Asn 145	Val	Ser	Thr	Arg	Gly 150	Met	Thr	Val	Ser	Glu 155	Ala	Val	Lys	Lys	Met 160
Arg	Gly	Lys	Pro	Gly 165	Thr	Lys	Ile	Thr	Leu 170	Thr	Leu	Ser	Arg	Lys 175	Asn
Ala	Asp	Lys	Pro 180	Ile	Val	Val	Asn	Leu 185	Thr	Arg	Ala	Ile	Ile 190	Lys	Val
Lys	Ser	Val 195	Arg	His	His	Leu	Ile 200	Glu	Pro	Asp	Tyr	Gly 205	Tyr	Ile	Arg
Val 210	Ser	Gln	Phe	Gln	Glu	Arg 215	Thr	Val	Glu	Ser	Val 220	Asn	Thr	Ala	Ala
Lys 225	Glu	Leu	Val	Lys	Glu 230	Asn	Lys	Gly	Lys	Pro 235	Leu	Lys	Gly	Leu 240	Val
Leu	Asp	Leu	Arg	Asp 245	Asp	Pro	Gly	Gly	Leu 250	Leu	Thr	Gly	Ala	Val 255	Gly
Val	Ser	Ala	Ala 260	Phe	Leu	Pro	Ser	Glu	Ala 265	Val	Val	Val	Ser 270	Thr	Lys
Gly	Arg	Asp 275	Gly	Lys	Asp	Arg	Met 280	Val	Leu	Lys	Ala	Val 285	Pro	Glu	Asp
Tyr 290	Val	Tyr	Gly	Met	Gly	Gly 295	Asp	Ser	Leu	Ala	Gly 300	Ile	Pro	Ala	Glu
Leu 305	Lys	Thr	Ile	Pro	Met 310	Thr	Val	Leu	Val	Asn 315	Ser	Gly	Ser	Ala	Ser 320
Ala	Ser	Glu	Ile	Val 325	Ala	Gly	Ala	Leu	Gln 330	Asp	His	Lys	Arg	Ala 335	Val
Ile	Val	Gly	Thr 340	Gln	Ser	Phe	Gly	Lys 345	Gly	Ser	Val	Gln	Thr 350	Leu	Ile
Pro	Leu	Ser 355	Asn	Gly	Ser	Ala	Val 360	Lys	Leu	Thr	Thr	Ala 365	Leu	Tyr	Tyr
Thr	Pro 370	Asn	Asp	Arg	Ser	Ile 375	Gln	Ala	Gln	Gly	Ile 380	Val	Pro	Asp	Val

Glu Val Lys Asp Lys Glu Arg Ile Phe Glu Ser Arg Glu Ala Asp Leu  
385 390 395 400

Val Gly His Ile Gly Asn Pro Leu Gly Gly Glu Asp Val Asn Ser Glu  
405 410 415

Thr Leu Ala Val Pro Leu Glu Lys Asp Ala Asp Lys Pro Ala Val Lys  
420 425 430

Glu Lys Gly Lys Lys Lys Lys Asp Glu Asp Leu Ser Ser Arg Arg Ile  
435 440 445

Pro Asn Pro Ala Lys Asp Asp Gln Leu Arg Lys Ala Leu Asp Leu Val  
450 455 460

Lys Ser Pro Glu Gln Trp Gln Lys Ser Leu Gly Leu Ala Ala Lys Lys  
465 470 475 480

Pro Val Ser Asn Lys Asp Lys Lys Asp Lys Lys Asp Lys Lys  
485 490

<210> 2487

<211> 372

<212> DNA

<213> Neisseria gonorrhoeae

<400> 2487

atgatgaatc cgaaaacctt gggccggttg tgcgtgtgtg cggcgggtctt ggctctgacc 60  
gcctgcgccg gcggcgggca taaaaacctg tattattacg gcggttatcc cgataaccgtc 120  
tatgaagggtt tgaaaaacga cgacacttcg ttgggcaagc agaccgaaaa gatggaaaaa 180  
tactttgcgg aagccgccaa caaaaaaatg aatgccgcc cgggtgcgca cgcccatTTg 240  
ggactgctgc tttcccgttc gggagacaaa gagggcgcggt tccgccaatt tgaagaagag 300  
aaaaggctgt ttcccgaatc gggcgtatTT atggacttcc tgatgaaaac cggtaaagga 360  
ggcaagcgat ga 372

<210> 2488

<211> 123

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2488

Met Met Asn Pro Lys Thr Leu Gly Arg Leu Ser Leu Cys Ala Ala Val  
1 5 10 15

Leu Ala Leu Thr Ala Cys Ala Gly Gly Gly His Lys Asn Leu Tyr Tyr  
20 25 30

Tyr Gly Gly Tyr Pro Asp Thr Val Tyr Glu Gly Leu Lys Asn Asp Asp  
35 40 45

Thr Ser Leu Gly Lys Gln Thr Glu Lys Met Glu Lys Tyr Phe Ala Glu  
50 55 60

Ala Ala Asn Lys Lys Met Asn Ala Ala Pro Gly Ala His Ala His Leu  
65 70 75 80

Gly Leu Leu Leu Ser Arg Ser Gly Asp Lys Glu Gly Ala Phe Arg Gln  
85 90 95

Phe Glu Glu Glu Lys Arg Leu Phe Pro Glu Ser Gly Val Phe Met Asp  
100 105 110

Phe Leu Met Lys Thr Gly Lys Gly Gly Lys Arg  
115 120

<210> 2489

<211> 372

<212> DNA

<213> Neisseria meningitidis

<400> 2489

atgatgaatc cgaaaacctt gagccgtttg tcgctgtgtg cggcggctctt ggctctgacc 60  
gcctgcggcg gcaacgggca aaaatccctg tattattacg gcggctatcc cgataccgtc 120  
tatgaagggtt tgaaaaacga cgacacttcg ttgggcaagc agaccgaaaa gatggaaaaa 180  
tactttgttg aagccggcaa caaaaaaatg aatgccgccc cgggtgcgca cgcccatctg 240  
ggactgctgc ttcccgttc gggagacaaa gagggcgcggt tccgccagtt tgaagaagag 300  
aaaaggctgt ttcccgaaac gggcgtatatt atggacttcc tgatgaaaac cggtaaagga 360  
ggcaagcgat ga 372

<210> 2490

<211> 123

<212> PRT

<213> Neisseria meningitidis

<400> 2490

Met Met Asn Pro Lys Thr Leu Ser Arg Leu Ser Leu Cys Ala Ala Val  
1 5 10 15

Leu Ala Leu Thr Ala Cys Gly Gly Asn Gly Gln Lys Ser Leu Tyr Tyr  
20 25 30

Tyr Gly Gly Tyr Pro Asp Thr Val Tyr Glu Gly Leu Lys Asn Asp Asp  
35 40 45

Thr Ser Leu Gly Lys Gln Thr Glu Lys Met Glu Lys Tyr Phe Val Glu  
50 55 60

Ala Gly Asn Lys Lys Met Asn Ala Ala Pro Gly Ala His Ala His Leu  
65 70 75 80

Gly Leu Leu Leu Ser Arg Ser Gly Asp Lys Glu Gly Ala Phe Arg Gln  
85 90 95

Phe Glu Glu Glu Lys Arg Leu Phe Pro Glu Ser Gly Val Phe Met Asp  
100 105 110

Phe Leu Met Lys Thr Gly Lys Gly Gly Lys Arg  
115 120

<210> 2491  
<211> 372  
<212> DNA  
<213> *Neisseria meningitidis*

<400> 2491  
atgatgaatc cgaaaacott gagccgtttg tcgctgtgtg cggcggtctt ggctctgacc 60  
gcctgcggcg gcaacgggca aaaatccctg tattattacg gcggctatcc cgataccgtc 120  
tatgaagggt tgaaaaacga cgacacttcg ttgggcaagc agaccgaaaa gatggaaaaa 180  
tactttgtgg aagccggcaa caaaaaaatg aatgccgccc cgggtgcgca cgcccatctg 240  
ggactgctgc tttcccgttc gggagacaaa gagggcgcggt tccgccagtt tgaagaagag 300  
aaaaggctgt ttcccgatc gggcgatatt atggacttcc tgatgaaaac cggtaaagga 360  
ggcaagcgat ga 372

<210> 2492  
<211> 123  
<212> PRT  
<213> *Neisseria meningitidis*

<400> 2492  
Met Met Asn Pro Lys Thr Leu Ser Arg Leu Ser Leu Cys Ala Ala Val  
1 5 10 15  
Leu Ala Leu Thr Ala Cys Gly Gly Asn Gly Gln Lys Ser Leu Tyr Tyr  
20 25 30  
Tyr Gly Gly Tyr Pro Asp Thr Val Tyr Glu Gly Leu Lys Asn Asp Asp  
35 40 45  
Thr Ser Leu Gly Lys Gln Thr Glu Lys Met Glu Lys Tyr Phe Val Glu  
50 55 60  
Ala Gly Asn Lys Lys Met Asn Ala Ala Pro Gly Ala His Ala His Leu  
65 70 75 80  
Gly Leu Leu Leu Ser Arg Ser Gly Asp Lys Glu Gly Ala Phe Arg Gln  
85 90 95  
Phe Glu Glu Glu Lys Arg Leu Phe Pro Glu Ser Gly Val Phe Met Asp  
100 105 110  
Phe Leu Met Lys Thr Gly Lys Gly Gly Lys Arg  
115 120

<210> 2493  
<211> 483  
<212> DNA  
<213> *Neisseria gonorrhoeae*

<400> 2493  
atgatgaaaa agatactggc agtatcggca ctatgcctga tgactgcggc ggcacaggct 60  
gccgatactt acggctatct cgccgttttg cagaatccgc aggatgcaaa cgatgttttg 120  
caggttaaaa ccacaaaaga agattcggcg aaaagcgaag cgtttgccga gttggaagcc 180  
ttttgcaaag gtcaggacac gcttgccggc attgccgaag acgagccgac cggatgccgg 240  
tcggtcgtgt cgctgaacaa tacctgtgtc tcgctggcat acccgaaagc cttgggcgcg 300

atgcgcgttg aaaacgccgt cgtgattact tctccgcgtt ttacgagcgt tcatcaggtc 360  
gcactcaacc agtgcataaa aaaatacggc gcacagggac aatgcggctt ggaaacagtg 420  
tattgcacgt catcttctta ttacggcggg gctgttcgct ccttaatcca acacctgaaa 480  
taa 483

<210> 2494  
<211> 160  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 2494  
Met Met Lys Lys Ile Leu Ala Val Ser Ala Leu Cys Leu Met Thr Ala  
1 5 10 15  
Ala Ala Gln Ala Ala Asp Thr Tyr Gly Tyr Leu Ala Val Trp Gln Asn  
20 25 30  
Pro Gln Asp Ala Asn Asp Val Leu Gln Val Lys Thr Thr Lys Glu Asp  
35 40 45  
Ser Ala Lys Ser Glu Ala Phe Ala Glu Leu Glu Ala Phe Cys Lys Gly  
50 55 60  
Gln Asp Thr Leu Ala Gly Ile Ala Glu Asp Glu Pro Thr Gly Cys Arg  
65 70 75 80  
Ser Val Val Ser Leu Asn Asn Thr Cys Val Ser Leu Ala Tyr Pro Lys  
85 90 95  
Ala Leu Gly Ala Met Arg Val Glu Asn Ala Val Val Ile Thr Ser Pro  
100 105 110  
Arg Phe Thr Ser Val His Gln Val Ala Leu Asn Gln Cys Ile Lys Lys  
115 120 125  
Tyr Gly Ala Gln Gly Gln Cys Gly Leu Glu Thr Val Tyr Cys Thr Ser  
130 135 140  
Ser Ser Tyr Tyr Gly Gly Ala Val Arg Ser Leu Ile Gln His Leu Lys  
145 150 155 160

<210> 2495  
<211> 279  
<212> DNA  
<213> Neisseria meningitidis

<400> 2495  
tcgggcattg ctgaagacga gccgaccgga tgccggctcg tcgtgtcgct gaacaatacc 60  
tgtgtcgcgc tggcataccc gaaagccttg ggcgcgctgc gtgtcgacaa cgccgtcgtg 120  
attacttctc cgcgttttac gagcgttcat caggctgcac tcaaccagtg catcaaaaaa 180  
tacggcgtac agggacaatg cggcttgga acagtgtatt gcacatcttc ttcttattac 240  
ggcggaactg tgcgctcttt gattcaaaat ctcaaataa 279

<210> 2496  
<211> 92  
<212> PRT  
<213> Neisseria meningitidis

<400> 2496  
Ser Gly Ile Ala Glu Asp Glu Pro Thr Gly Cys Arg Ser Val Val Ser  
1 5 10 15  
Leu Asn Asn Thr Cys Val Ala Leu Ala Tyr Pro Lys Ala Leu Gly Ala  
20 25 30  
Leu Arg Val Asp Asn Ala Val Val Ile Thr Ser Pro Arg Phe Thr Ser  
35 40 45  
Val His Gln Val Ala Leu Asn Gln Cys Ile Lys Lys Tyr Gly Val Gln  
50 55 60  
Gly Gln Cys Gly Leu Glu Thr Val Tyr Cys Thr Ser Ser Ser Tyr Tyr  
65 70 75 80  
Gly Gly Thr Val Arg Ser Leu Ile Gln Asn Leu Lys  
85 90

<210> 2497  
<211> 483  
<212> DNA  
<213> Neisseria meningitidis

<400> 2497  
atgatgaaaa agatactggc cgtatcggca ctatgcctga tgactgcggc ggcacgggct 60  
gccgatactt acggctatct cgccgttttg cagaatccgc agaatgcaaa cgatgttttg 120  
cagggttaaaa ccacaaaaga agattcgacg aaaagcgaag cgtttgccga gttggaagct 180  
ttctgcaaag gtcaggacac gcttgccggc attgccgaag acgagccgac cggatgccgg 240  
tcggtcgtgt cgctgaacaa tacctgtgtc gcgctggcat acccgaaagc cttgggcgcg 300  
atgcgcgttg aaaacgcggt tgtgattact tctccgcgtt ttacgagcgt ttatcaggtc 360  
gcactcaacc agtgcacaa aaaatacggc gcacagggac aatgcggcct ggaaacagt 420  
tattgcacgt cttcttctta ttacggggga actgtgcgct ctttgattca aaatctcaaa 480  
taa 483

<210> 2498  
<211> 160  
<212> PRT  
<213> Neisseria meningitidis

<400> 2498  
Met Met Lys Lys Ile Leu Ala Val Ser Ala Leu Cys Leu Met Thr Ala  
1 5 10 15  
Ala Ala Arg Ala Ala Asp Thr Tyr Gly Tyr Leu Ala Val Trp Gln Asn  
20 25 30  
Pro Gln Asn Ala Asn Asp Val Leu Gln Val Lys Thr Thr Lys Glu Asp



35	40	45
Ser Thr Lys Ser Glu Ala Phe Ala Glu Leu Glu Ala Phe Cys Lys Gly		
50	55	60
Gln Asp Thr Leu Ala Gly Ile Ala Glu Asp Glu Pro Thr Gly Cys Arg		
65	70	75
Ser Val Val Ser Leu Asn Asn Thr Cys Val Ala Leu Ala Tyr Pro Lys		
	85	90
Ala Leu Gly Ala Met Arg Val Glu Asn Ala Val Val Ile Thr Ser Pro		
	100	105
Arg Phe Thr Ser Val Tyr Gln Val Ala Leu Asn Gln Cys Ile Lys Lys		
	115	120
Tyr Gly Ala Gln Gly Gln Cys Gly Leu Glu Thr Val Tyr Cys Thr Ser		
	130	135
Ser Ser Tyr Tyr Gly Gly Thr Val Arg Ser Leu Ile Gln Asn Leu Lys		
145	150	155
		160

<210> 2499  
 <211> 420  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2499  
 atgaatctcg tgaaactgct ggcgaaataac tggcaaccga ttgccattat cgcgcttgtc 60  
 ggcacgggct tggtgtgtgc gcaccatcaa ggctacaagt cggcatttgc gaagcagcag 120  
 gcggtcatcg acaagatgga gcgcgacaag gcgcaagccc tgctgttgtc ggctcaaaac 180  
 tatgcgcgcg aactggaact ggcacgcgcg gaagctaaaa aatatgaagt caaggcgcac 240  
 gctgtcggca tggctttggc gaaaaaacag gcggaagtca gccgtctgaa aacggaaaat 300  
 aaaaaggaaa tcgaaaatgt ccttactcaa gaccgtaaaa atgcaagcgg cggttgcatt 360  
 gacggctttg gctctcacgg cctgcagctc tacaaccgcg ccctcggcta cggaatttaa 420

<210> 2500  
 <211> 139  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2500  
 Met Asn Leu Val Lys Leu Leu Ala Asn Asn Trp Gln Pro Ile Ala Ile  
 1 5 10 15  
 Ile Ala Leu Val Gly Thr Gly Leu Ala Val Ser His His Gln Gly Tyr  
 20 25 30  
 Lys Ser Ala Phe Ala Lys Gln Gln Ala Val Ile Asp Lys Met Glu Arg  
 35 40 45

Asp Lys Ala Gln Ala Leu Leu Leu Ser Ala Gln Asn Tyr Ala Arg Glu  
 50 55 60  
 Leu Glu Leu Ala Arg Ala Glu Ala Lys Lys Tyr Glu Val Lys Ala His  
 65 70 75 80  
 Ala Val Gly Met Ala Leu Ala Lys Lys Gln Ala Glu Val Ser Arg Leu  
 85 90 95  
 Lys Thr Glu Asn Lys Lys Glu Ile Glu Asn Val Leu Thr Gln Asp Arg  
 100 105 110  
 Lys Asn Ala Ser Gly Gly Cys Ile Asp Gly Phe Gly Ser His Gly Leu  
 115 120 125  
 Gln Leu Tyr Asn Arg Ala Leu Gly Tyr Gly Asn  
 130 135

<210> 2501  
 <211> 420  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 2501  
 atgaatctcg tgaaactgct ggcgaaataac tggcaaccga ttgccatcat cgcgcttgctc 60  
 ggcaacgggtt tggcgggtgct gcaccatcaa ggctacaagt cggcttttgc gaagcagcag 120  
 gcggtcattg agaaaatgaa gcgcgacaag gcgcaagccc tgctgttgctc ggctcaaaac 180  
 tacgcccgcg aactggaaca ggcgcggtgcg gaagctaaaa aatatgaagt caaggcgcac 240  
 gccgtcggca tggcttttggc gaaaaaacag gcggaagtca gccgtctgaa aacggaaaat 300  
 aaaaaggaaa tcgaaaatgt ccttactcaa gaccgtaaaa atgcaggcgg cggttgtatt 360  
 gacggctttt gccatcacgg cttgcagctc tacaagcgcg ccctcggcta cggaaattaa 420

<210> 2502  
 <211> 139  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 2502  
 Met Asn Leu Val Lys Leu Leu Ala Asn Asn Trp Gln Pro Ile Ala Ile  
 1 5 10 15  
 Ile Ala Leu Val Gly Thr Gly Leu Ala Val Ser His His Gln Gly Tyr  
 20 25 30  
 Lys Ser Ala Phe Ala Lys Gln Gln Ala Val Ile Glu Lys Met Lys Arg  
 35 40 45  
 Asp Lys Ala Gln Ala Leu Leu Leu Ser Ala Gln Asn Tyr Ala Arg Glu  
 50 55 60  
 Leu Glu Gln Ala Arg Ala Glu Ala Lys Lys Tyr Glu Val Lys Ala His  
 65 70 75 80  
 Ala Val Gly Met Ala Leu Ala Lys Lys Gln Ala Glu Val Ser Arg Leu  
 85 90 95

Lys Thr Glu Asn Lys Lys Glu Ile Glu Asn Val Leu Thr Gln Asp Arg  
 100 105 110

Lys Asn Ala Gly Gly Gly Cys Ile Asp Gly Phe Gly His His Gly Leu  
 115 120 125

Gln Leu Tyr Lys Arg Ala Leu Gly Tyr Gly Asn  
 130 135

<210> 2503

<211> 777

<212> DNA

<213> Neisseria gonorrhoeae

<400> 2503

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atgaatttta tccgttccgt cggggcgaaa accctcggcc ttattcaatc cttcggcagt 60
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ctgagcgtgc gccaaagtga ttttgccggc gtgctgtcgg tgctgattgt tgccgtttcg 180
gggctgttcg tcggtatggt tttgggtttg cagggtata cgcagttgtc gaaattcaaa 240
tccgccgata ttttgggcta tatggtcgcg gcttctctgt tgcgcgaact ggggtcccg 300
ttggcggcga ttctgtttgc cagcagcgcg ggcggtgcga tgaccagcga aatcggttg 360
atgaaaacga ccggacagct cgaagcgatg aacgtgatgg cggtaaccc cgtcgccgc 420
gtggttgccc cgcgtttttg ggccggcggtg ttttctatgc cgcgttttggc ttcgattttc 480
aacgtcgcgg gcattttcgg cgcgtatttg gtcggcggtga gctggctggg tttggacagc 540
ggtattttct ggccgcagat gcagaacaac attacgatac attacgatgt aatcaacgg 600
ttgatcaaat ccgccgcgtt cggcgtggcg gtaacgctga ttgccgtgca tcagggttc 660
cactgcatcc cgacttcgga aggcattttg cgcgccagca cgcgcacggg gggttcgtcc 720
gcctgacga ttttggcggt cgattttata ttgaccgcgt ggatgtttac agattga 777
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<210> 2504

<211> 258

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2504

Met Asn Phe Ile Arg Ser Val Gly Ala Lys Thr Leu Gly Leu Ile Gln  
 1 5 10 15

Ser Phe Gly Ser Ile Thr Leu Phe Leu Leu Asn Ile Leu Ala Lys Ser  
 20 25 30

Gly Thr Ala Phe Ala Arg Pro Arg Leu Ser Val Arg Gln Val Tyr Phe  
 35 40 45

Ala Gly Val Leu Ser Val Leu Ile Val Ala Val Ser Gly Leu Phe Val  
 50 55 60

Gly Met Val Leu Gly Leu Gln Gly Tyr Thr Gln Leu Ser Lys Phe Lys  
 65 70 75 80

Ser Ala Asp Ile Leu Gly Tyr Met Val Ala Ala Ser Leu Leu Arg Glu  
 85 90 95

Leu Gly Pro Val Leu Ala Ala Ile Leu Phe Ala Ser Ser Ala Gly Gly

100	105	110
Ala Met Thr Ser Glu Ile Gly Leu Met Lys Thr Thr Gly Gln Leu Glu		
115	120	125
Ala Met Asn Val Met Ala Val Asn Pro Val Ala Arg Val Val Ala Pro		
130	135	140
Arg Phe Trp Ala Gly Val Phe Ser Met Pro Leu Leu Ala Ser Ile Phe		
145	150	155
Asn Val Ala Gly Ile Phe Gly Ala Tyr Leu Val Gly Val Ser Trp Leu		
165	170	175
Gly Leu Asp Ser Gly Ile Phe Trp Pro Gln Met Gln Asn Asn Ile Thr		
180	185	190
Ile His Tyr Asp Val Ile Asn Gly Leu Ile Lys Ser Ala Ala Phe Gly		
195	200	205
Val Ala Val Thr Leu Ile Ala Val His Gln Gly Phe His Cys Ile Pro		
210	215	220
Thr Ser Glu Gly Ile Leu Arg Ala Ser Thr Arg Thr Val Val Ser Ser		
225	230	235
Ala Leu Thr Ile Leu Ala Val Asp Phe Ile Leu Thr Ala Trp Met Phe		
245	250	255

Thr Asp

<210> 2505  
 <211> 777  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2505  
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 atcacgctgt ttctgctgaa ctttttggcg aaatccggca cggctttcgc cgtccgcgc 120  
 ctgagcgtgc gccaaagtga ttttgccggc gtgctgtcgg tgctgattgt tgccgtttcg 180  
 gggctgttcg tcggtatggt tttgggtttg cagggtata cgcagttgtc gaaattcaaa 240  
 tccgccgata ttttgggcta tatggtcgcg gcttctctgt tgcgcgaact ggggtcccgtg 300  
 ttggcggcga ttctgtttgc cagcagcgcg ggcggtgcga tgaccagcga aatcggtttg 360  
 atgaaaacga ccggacagct cgaagcgatg aacgtgatgg cgggtcaaccc cgtcgccgc 420  
 gtggttgccc cgcgtttttg ggcgggcgtg ttttctatgc cgtttttggc ttcgattttc 480  
 aacgtcgcg gcattttcgg cgcgtatttg gtcggcgtga gctggctggg tttggacagc 540  
 ggtattttct ggccgcagat gcagaacaac attacgatac attacgatgt aatcaacggg 600  
 ttgatcaaat ccgccgcgtt cggcgtggcg gtaacgctga ttgccgtgca tcagggcttc 660  
 cactgcatcc cgacttcgga aggcattttg cgcgccagca cgcgcacggt ggtttcgtcc 720  
 gccctgacga ttttggcggt cgattttata ttgaccgcgt ggatgtttac agattga 777

<210> 2506  
 <211> 258  
 <212> PRT

<213> Neisseria meningitidis

<400> 2506

Met Asn Phe Ile Arg Ser Val Gly Ala Lys Thr Leu Gly Leu Ile Gln  
1 5 10 15  
Ser Leu Gly Ser Ile Thr Leu Phe Leu Leu Asn Ile Leu Ala Lys Ser  
20 25 30  
Gly Thr Ala Phe Val Arg Pro Arg Leu Ser Val Arg Gln Val Tyr Phe  
35 40 45  
Ala Gly Val Leu Ser Val Leu Ile Val Ala Val Ser Gly Leu Phe Val  
50 55 60  
Gly Met Val Leu Gly Leu Gln Gly Tyr Thr Gln Leu Ser Lys Phe Lys  
65 70 75 80  
Ser Ala Asp Ile Leu Gly Tyr Met Val Ala Ala Ser Leu Leu Arg Glu  
85 90 95  
Leu Gly Pro Val Leu Ala Ala Ile Leu Phe Ala Ser Ser Ala Gly Gly  
100 105 110  
Ala Met Thr Ser Glu Ile Gly Leu Met Lys Thr Thr Glu Gln Leu Glu  
115 120 125  
Ala Met Asn Val Met Ala Val Asn Pro Val Ala Arg Val Val Ala Pro  
130 135 140  
Arg Phe Trp Ala Gly Val Phe Ser Met Pro Leu Leu Ala Ser Ile Phe  
145 150 155 160  
Asn Val Ala Gly Ile Phe Gly Ala Tyr Leu Val Gly Val Thr Trp Leu  
165 170 175  
Gly Leu Asp Ser Gly Ile Phe Trp Ser Gln Met Gln Asn Asn Ile Thr  
180 185 190  
Ile His Tyr Asp Val Ile Asn Gly Leu Ile Lys Ser Ala Ala Phe Gly  
195 200 205  
Val Ala Val Thr Leu Ile Ala Val His Gln Gly Phe His Cys Val Pro  
210 215 220  
Thr Ser Glu Gly Ile Leu Arg Ala Ser Thr Arg Thr Val Val Ser Ser  
225 230 235 240  
Ala Leu Thr Ile Leu Ala Val Asp Phe Ile Leu Thr Ala Trp Met Phe  
245 250 255  
Thr Asp

<210> 2507

<211> 777

<212> DNA

<213> *Neisseria meningitidis*

<400> 2507

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ctgagcgtgc gccaaagtga ttttgccggc gtgctgtcgg tgttgattgt tgccgtttca 180
gggctgtttg tcggcatggg cttgggtttg cagggtata cgcagttgtc gaaattcaaa 240
tccgccgata ttttgggcta tatggtcgcg gcttcgctgt tgcgcgaact ggggccggtg 300
ttggcggcga ttctgtttgc cagcagcgcg ggcggtgcga tgaccagcga aatcggtttg 360
atgaaaacga ccgaacagct cgaagcgatg aacgtgatgg cggtaaaccg cgtcgcccga 420
gtggttgccg cgcgcttttg ggcgggcgtg ttttccatgc cgcttttggc ttcgattttc 480
aacgtggcgg gtattttcgg cgcgtatttg gtcggtgtaa cctggctggg cttggacagc 540
ggtattttct ggtcgcaaat gcagaacaac atcacgatac attacgatgt aatcaacggg 600
ctgatcaaat ccgccgcgtt cggcgtggcg gtaacgctga ttgccgtgca tcagggttcc 660
cactgcgtcc cgacctcgga aggcattttg cgcgccagca cgcgcacggg ggtttcgtcc 720
gccctgacga ttttggcggg cgattttata ttgaccgcgt ggatgtttac agattga 777
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<210> 2508

<211> 258

<212> PRT

<213> *Neisseria meningitidis*

<400> 2508

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Met Asn Phe Ile Arg Ser Val Gly Ala Lys Thr Leu Gly Leu Ile Gln
  1             5             10             15

Ser Leu Gly Ser Ile Thr Leu Phe Leu Leu Asn Ile Leu Ala Lys Ser
      20             25             30

Gly Thr Ala Phe Val Arg Pro Arg Leu Ser Val Arg Gln Val Tyr Phe
      35             40             45

Ala Gly Val Leu Ser Val Leu Ile Val Ala Val Ser Gly Leu Phe Val
      50             55             60

Gly Met Val Leu Gly Leu Gln Gly Tyr Thr Gln Leu Ser Lys Phe Lys
      65             70             75             80

Ser Ala Asp Ile Leu Gly Tyr Met Val Ala Ala Ser Leu Leu Arg Glu
      85             90             95

Leu Gly Pro Val Leu Ala Ala Ile Leu Phe Ala Ser Ser Ala Gly Gly
      100            105            110

Ala Met Thr Ser Glu Ile Gly Leu Met Lys Thr Thr Glu Gln Leu Glu
      115            120            125

Ala Met Asn Val Met Ala Val Asn Pro Val Ala Arg Val Val Ala Pro
      130            135            140

Arg Phe Trp Ala Gly Val Phe Ser Met Pro Leu Leu Ala Ser Ile Phe
      145            150            155            160

Asn Val Ala Gly Ile Phe Gly Ala Tyr Leu Val Gly Val Thr Trp Leu
      165            170            175
```

Gly Leu Asp Ser Gly Ile Phe Trp Ser Gln Met Gln Asn Asn Ile Thr  
 180 185 190  
 Ile His Tyr Asp Val Ile Asn Gly Leu Ile Lys Ser Ala Ala Phe Gly  
 195 200 205  
 Val Ala Val Thr Leu Ile Ala Val His Gln Gly Phe His Cys Val Pro  
 210 215 220  
 Thr Ser Glu Gly Ile Leu Arg Ala Ser Thr Arg Thr Val Val Ser Ser  
 225 230 235 240  
 Ala Leu Thr Ile Leu Ala Val Asp Phe Ile Leu Thr Ala Trp Met Phe  
 245 250 255

Thr Asp

<210> 2509  
 <211> 327  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 2509  
 atgaacatca aacaccttct cttgaccgcc gccgcaaccg cactggttggg catttccgcc 60  
 cccgcactcg cccaccacga cggacacggc gatgacgacc acggacacgc cgcacaccaa 120  
 cacggcaaac aagacaaaat catcagccgc gcccaagccg aaaaagcggc ttgggcgcgt 180  
 gtcggcggca aaatcaccga catcgatctc gaacacgacg acggccgtcc gcactatgat 240  
 gtcgaaatcg tcaaaaacgg acaggaatac aaagtcgttg tcgatgcccg taccggccgc 300  
 gtgatttcct cccgccgcga cgactga 327

<210> 2510  
 <211> 108  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2510  
 Met Asn Ile Lys His Leu Leu Leu Thr Ala Ala Ala Thr Ala Leu Leu  
 1 5 10 15  
 Gly Ile Ser Ala Pro Ala Leu Ala His His Asp Gly His Gly Asp Asp  
 20 25 30  
 Asp His Gly His Ala Ala His Gln His Gly Lys Gln Asp Lys Ile Ile  
 35 40 45  
 Ser Arg Ala Gln Ala Glu Lys Ala Ala Trp Ala Arg Val Gly Gly Lys  
 50 55 60  
 Ile Thr Asp Ile Asp Leu Glu His Asp Asp Gly Arg Pro His Tyr Asp  
 65 70 75 80  
 Val Glu Ile Val Lys Asn Gly Gln Glu Tyr Lys Val Val Val Asp Ala

85

90

95

Arg Thr Gly Arg Val Ile Ser Ser Arg Arg Asp Asp

100

105

&lt;210&gt; 2511

&lt;211&gt; 327

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 2511

```

atgaacatca aacaccttct cttgacctcc gccgcaaccg cactgctgag catttccgcc 60
cccgcgctcg cccaccacga cggacacggc gatgacgacc acggacacgc cgcacaccaa 120
cacaacaaac aagacaaaat catcagccgc gcccaagccg aaaaagcagc gttggcgcg 180
gtcggcgggca aaatcaccga catcgatctc gaacacgaca acggccgtcc gcactatgat 240
gtcgaaatcg tcaaaaacgg acaggaatac aaagtcgttg tcgatgcccg taccggccgc 300
gtgatttcct cccgccgcga cgactga 327

```

&lt;210&gt; 2512

&lt;211&gt; 108

&lt;212&gt; PRT

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 2512

```

Met Asn Ile Lys His Leu Leu Leu Thr Ser Ala Ala Thr Ala Leu Leu
  1             5             10             15

Ser Ile Ser Ala Pro Ala Leu Ala His His Asp Gly His Gly Asp Asp
      20             25             30

Asp His Gly His Ala Ala His Gln His Asn Lys Gln Asp Lys Ile Ile
      35             40             45

Ser Arg Ala Gln Ala Glu Lys Ala Ala Leu Ala Arg Val Gly Gly Lys
      50             55             60

Ile Thr Asp Ile Asp Leu Glu His Asp Asn Gly Arg Pro His Tyr Asp
      65             70             75             80

Val Glu Ile Val Lys Asn Gly Gln Glu Tyr Lys Val Val Val Asp Ala
      85             90             95

Arg Thr Gly Arg Val Ile Ser Ser Arg Arg Asp Asp
      100             105

```

&lt;210&gt; 2513

&lt;211&gt; 327

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 2513

```

atgaacttca aacgccttct cttgaccgcc gccgcaaccg cactgatggg catttccgcc 60
cccgcactcg cccaccacga cggacacggc gatgacgacc acggacacgc cgcacaccaa 120

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cacagcaaac aagacaaaat catcagccgc gcccaagccg aaaaagcagc gttggcgcggt 180  
 gtcggcgggca aaatcaccga catcgatctc gaacacgaca acggccgtcc gcactatgat 240  
 gtcgaaatcg tcaaaaacgg acaggaatac aaagtcgttg tcgatgcccg taccggccgc 300  
 gtgatttcct cccgccgcga cgactga 327

<210> 2514

<211> 108

<212> PRT

<213> *Neisseria meningitidis*

<400> 2514

Met Asn Phe Lys Arg Leu Leu Leu Thr Ala Ala Ala Thr Ala Leu Met  
 1 5 10 15

Gly Ile Ser Ala Pro Ala Leu Ala His His Asp Gly His Gly Asp Asp  
 20 25 30

Asp His Gly His Ala Ala His Gln His Ser Lys Gln Asp Lys Ile Ile  
 35 40 45

Ser Arg Ala Gln Ala Glu Lys Ala Ala Leu Ala Arg Val Gly Gly Lys  
 50 55 60

Ile Thr Asp Ile Asp Leu Glu His Asp Asn Gly Arg Pro His Tyr Asp  
 65 70 75 80

Val Glu Ile Val Lys Asn Gly Gln Glu Tyr Lys Val Val Val Asp Ala  
 85 90 95

Arg Thr Gly Arg Val Ile Ser Ser Arg Arg Asp Asp  
 100 105

<210> 2515

<211> 1815

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 2515

atgtccgctg aaacgaccgt atccggcgcg cgccccgcgc ccaaactgcc gatttacatc 60  
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 tcgcccgcact tttaccacga tgccgccgcc gcgggccggc tgattgtcct gttgttcctc 180  
 acggcaggaa aaaagctggt tgatgtcaaa atccccgcca tcagcttcct cctgtttgca 240  
 atggcggcgt tttggtggct tcaggcacgc ctgatgaacc tgatttatcc cggaatgaac 300  
 gacatcgccct cttgggtttt catcttgctc gccgtcagcg cgtgggcctg caagagtttg 360  
 gtcgcacact acggacaaga acgcatcggt accctgtttg cctggtcgct gcttatcggc 420  
 tccttgcttc aatcctgcgt cgtcgtcatc cagtttgccg gctgggaaaa caccctctg 480  
 cttcaaaaaca tcactgttca cagagggcaa ggcgtaacg gacacatcgg gcagcgcaac 540  
 aacctcggac actacctcat gtggggcata ctgcctccg cctacctcaa cggacaacga 600  
 aaaatccccg cagccctcgg cgcaatctgc ctgattatgc agaccgccgt tttaggtttg 660  
 gtcaattcgc gcaccatctt gacctacata gccgccatcg cctcatcct tcccttctgg 720  
 tattttccgtt cggacaaatc caacagacgg acgatgctcg gcatagccgc agccgtattc 780  
 cttaccgcgc tgttccaatt ttccatgaac gccattctgg aaacctttac aggcacccgc 840  
 tacgaaactg ccgtcgaacg cgtcgccaac ggcggtttca cagacttgcc gcgcgcaagc 900  
 gaatggaata aagcccttgc cgccttcag tccgccccga tattcgggca cggctggaac 960  
 agttttgccc aacaaacctt cctgatcaat gccgaacagc acaccataca cgacaacttc 1020

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ctcagcaoct tgttcaccca ttcccacaac atcatcctcc aactccttgc agaaatgggg 1080
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agtatgctcg aatatccttt gtggtatgtc tatttcctca tccccttcgg actgatgctc 1260
tttctgtccc ccgcagaggc ttcagacggc atgccttca aaaaagccgc caatctcggc 1320
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cggctgggta actccttttc cccgcgcgct gacgacagt ccaaaaccct caaccggaaa 1440
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accctcaaag cactaaaata ccgcccctac tccgccacct accgcatcgc cctctacttg 1620
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ccctacctga tgccccgata ccgcgacgaa atccgcaaac tgcccgtatg ggcaccgctg 1740
ctgcccgaac tgctcaaaga ctgcaaagcc ttcgcgcgcg ctcccggcca tccggaaaac 1800
aaaccctgca aatga 1815

```

<210> 2516

<211> 604

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2516

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Met Ser Ala Glu Thr Thr Val Ser Gly Ala Arg Pro Ala Ala Lys Leu
  1              5              10              15

```

```

Pro Ile Tyr Ile Leu Pro Cys Phe Leu Trp Ile Gly Ile Ile Pro Phe
          20              25              30

```

```

Thr Phe Ala Leu Arg Leu Lys Pro Ser Pro Asp Phe Tyr His Asp Ala
          35              40              45

```

```

Ala Ala Ala Ala Gly Leu Ile Val Leu Leu Phe Leu Thr Ala Gly Lys
          50              55              60

```

```

Lys Leu Phe Asp Val Lys Ile Pro Ala Ile Ser Phe Leu Leu Phe Ala
          65              70              75              80

```

```

Met Ala Ala Phe Trp Trp Leu Gln Ala Arg Leu Met Asn Leu Ile Tyr
          85              90              95

```

```

Pro Gly Met Asn Asp Ile Ala Ser Trp Val Phe Ile Leu Leu Ala Val
          100             105             110

```

```

Ser Ala Trp Ala Cys Lys Ser Leu Val Ala His Tyr Gly Gln Glu Arg
          115             120             125

```

```

Ile Val Thr Leu Phe Ala Trp Ser Leu Leu Ile Gly Ser Leu Leu Gln
          130             135             140

```

```

Ser Cys Ile Val Val Ile Gln Phe Ala Gly Trp Glu Asn Thr Pro Leu
          145             150             155             160

```

```

Leu Gln Asn Ile Ile Val His Arg Gly Gln Gly Val Ile Gly His Ile
          165             170             175

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```

Gly Gln Arg Asn Asn Leu Gly His Tyr Leu Met Trp Gly Ile Leu Ala
          180             185             190

```

Ser Ala Tyr Leu Asn Gly Gln Arg Lys Ile Pro Ala Ala Leu Gly Ala  
 195 200 205  
 Ile Cys Leu Ile Met Gln Thr Ala Val Leu Gly Leu Val Asn Ser Arg  
 210 215 220  
 Thr Ile Leu Thr Tyr Ile Ala Ala Ile Ala Leu Ile Leu Pro Phe Trp  
 225 230 235 240  
 Tyr Phe Arg Ser Asp Lys Ser Asn Arg Arg Thr Met Leu Gly Ile Ala  
 245 250 255  
 Ala Ala Val Phe Leu Thr Ala Leu Phe Gln Phe Ser Met Asn Ala Ile  
 260 265 270  
 Leu Glu Thr Phe Thr Gly Ile Arg Tyr Glu Thr Ala Val Glu Arg Val  
 275 280 285  
 Ala Asn Gly Gly Phe Thr Asp Leu Pro Arg Gln Ser Glu Trp Asn Lys  
 290 295 300  
 Ala Leu Ala Ala Phe Gln Ser Ala Pro Ile Phe Gly His Gly Trp Asn  
 305 310 315 320  
 Ser Phe Ala Gln Gln Thr Phe Leu Ile Asn Ala Glu Gln His Thr Ile  
 325 330 335  
 His Asp Asn Phe Leu Ser Thr Leu Phe Thr His Ser His Asn Ile Ile  
 340 345 350  
 Leu Gln Leu Leu Ala Glu Met Gly Ile Ser Gly Thr Leu Leu Val Ala  
 355 360 365  
 Ala Thr Leu Leu Thr Gly Ile Ala Gly Leu Leu Lys Arg Ser Leu Thr  
 370 375 380  
 Pro Ala Ser Leu Phe Leu Leu Cys Ala Leu Ala Val Ser Met Cys His  
 385 390 395 400  
 Ser Met Leu Glu Tyr Pro Leu Trp Tyr Val Tyr Phe Leu Ile Pro Phe  
 405 410 415  
 Gly Leu Met Leu Phe Leu Ser Pro Ala Glu Ala Ser Asp Gly Ile Ala  
 420 425 430  
 Phe Lys Lys Ala Ala Asn Leu Gly Ile Leu Thr Ala Ser Ala Ala Ile  
 435 440 445  
 Phe Ala Gly Leu Leu His Leu Asp Trp Thr Tyr Thr Arg Leu Val Asn  
 450 455 460  
 Ser Phe Ser Pro Ala Ala Asp Asp Ser Ala Lys Thr Leu Asn Arg Lys  
 465 470 475 480  
 Ile Asn Glu Leu Arg Tyr Ile Ser Ala Asn Ser Pro Met Leu Ser Phe



atgcggcaag gcaaagttgc agaagcaaaa caatggatgc gggcgacaca gtcctattac 1680  
 ccgtacctga tgccccgata cgccgacgaa atccgcaaac tgcccgtatg ggcgccgctg 1740  
 ctaccogaac tgctcaaaga ctgcaaagcc ttcgccgccg cgcccgtca tccggaagca 1800  
 aaaccctgca aatga 1815

<210> 2518  
 <211> 604  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2518  
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 1 5 10 15  
 Pro Ile Tyr Ile Leu Pro Cys Phe Leu Trp Ile Gly Ile Val Pro Phe  
 20 25 30  
 Thr Phe Ala Leu Lys Leu Lys Pro Ser Pro Asp Phe Tyr His Asp Ala  
 35 40 45  
 Ala Ala Ala Ala Gly Leu Ile Val Leu Leu Phe Leu Thr Ala Gly Lys  
 50 55 60  
 Lys Leu Phe Asp Val Lys Ile Pro Ala Ile Ser Phe Leu Leu Phe Ala  
 65 70 75 80  
 Met Ala Ala Phe Trp Tyr Leu Gln Ala Arg Leu Met Asn Leu Ile Tyr  
 85 90 95  
 Pro Gly Met Asn Asp Ile Val Ser Trp Ile Phe Ile Leu Leu Ala Val  
 100 105 110  
 Ser Ala Trp Ala Cys Arg Ser Leu Val Ala His Phe Gly Gln Glu Arg  
 115 120 125  
 Ile Val Thr Leu Phe Ala Trp Ser Leu Leu Ile Gly Ser Leu Leu Gln  
 130 135 140  
 Ser Cys Ile Val Val Ile Gln Phe Ala Gly Trp Glu Asp Thr Pro Leu  
 145 150 155 160  
 Phe Gln Asn Ile Ile Val Tyr Ser Gly Gln Gly Val Ile Gly His Ile  
 165 170 175  
 Gly Gln Arg Asn Asn Leu Gly His Tyr Leu Met Trp Gly Ile Leu Ala  
 180 185 190  
 Ala Ala Tyr Leu Asn Gly Gln Arg Lys Ile Pro Ala Ala Leu Gly Val  
 195 200 205  
 Ile Cys Leu Ile Met Gln Thr Ala Val Leu Gly Leu Val Asn Ser Arg  
 210 215 220  
 Thr Ile Leu Thr Tyr Ile Ala Ala Ile Ala Leu Ile Leu Pro Phe Trp  
 225 230 235 240

Tyr	Phe	Arg	Ser	Asp	Lys	Ser	Asn	Arg	Arg	Thr	Met	Leu	Gly	Ile	Ala		245	250	255
Ala	Ala	Val	Phe	Leu	Thr	Ala	Leu	Phe	Gln	Phe	Ser	Met	Asn	Thr	Ile		260	265	270
Leu	Glu	Thr	Phe	Thr	Gly	Ile	Arg	Tyr	Glu	Thr	Ala	Val	Glu	Arg	Val		275	280	285
Ala	Asn	Gly	Gly	Phe	Thr	Asp	Leu	Pro	Arg	Gln	Ile	Glu	Trp	Asn	Lys		290	295	300
Ala	Leu	Ala	Ala	Phe	Gln	Ser	Ala	Pro	Ile	Phe	Gly	His	Gly	Trp	Asn		305	310	315
Ser	Phe	Ala	Gln	Gln	Thr	Phe	Leu	Ile	Asn	Ala	Glu	Gln	His	Asn	Ile		325	330	335
Tyr	Asp	Asn	Leu	Leu	Ser	Asn	Leu	Phe	Thr	His	Ser	His	Asn	Ile	Val		340	345	350
Leu	Gln	Leu	Leu	Ala	Glu	Met	Gly	Ile	Ser	Gly	Thr	Leu	Leu	Val	Ala		355	360	365
Ala	Thr	Leu	Leu	Thr	Gly	Ile	Ala	Gly	Leu	Leu	Lys	Arg	Pro	Leu	Thr		370	375	380
Pro	Ala	Ser	Leu	Phe	Leu	Ile	Cys	Thr	Leu	Ala	Val	Ser	Met	Cys	His		385	390	395
Ser	Met	Leu	Glu	Tyr	Pro	Leu	Trp	Tyr	Val	Tyr	Phe	Leu	Ile	Pro	Phe		405	410	415
Gly	Leu	Met	Leu	Phe	Leu	Ser	Pro	Ala	Glu	Ala	Ser	Asp	Gly	Ile	Ala		420	425	430
Phe	Lys	Lys	Ala	Ala	Asn	Leu	Gly	Ile	Leu	Thr	Ala	Ser	Ala	Ala	Ile		435	440	445
Phe	Ala	Gly	Leu	Leu	His	Leu	Asp	Trp	Thr	Tyr	Thr	Arg	Leu	Val	Asn		450	455	460
Ala	Phe	Ser	Pro	Ala	Thr	Asp	Asp	Ser	Ala	Lys	Thr	Leu	Asn	Arg	Lys		465	470	475
Ile	Asn	Glu	Leu	Arg	Tyr	Ile	Ser	Ala	Asn	Ser	Pro	Met	Leu	Ser	Phe		485	490	495
Tyr	Ala	Asp	Phe	Ser	Leu	Val	Asn	Phe	Ala	Leu	Pro	Glu	Tyr	Pro	Glu		500	505	510
Thr	Gln	Thr	Trp	Ala	Glu	Glu	Ala	Thr	Leu	Lys	Ser	Leu	Lys	Tyr	Arg		515	520	525
Pro	His	Ser	Ala	Thr	Tyr	Arg	Ile	Ala	Leu	Tyr	Leu	Met	Arg	Gln	Gly		530	535	540

Lys Val Ala Glu Ala Lys Gln Trp Met Arg Ala Thr Gln Ser Tyr Tyr  
 545 550 555 560

Pro Tyr Leu Met Pro Arg Tyr Ala Asp Glu Ile Arg Lys Leu Pro Val  
 565 570 575

Trp Ala Pro Leu Leu Pro Glu Leu Leu Lys Asp Cys Lys Ala Phe Ala  
 580 585 590

Ala Ala Pro Gly His Pro Glu Ala Lys Pro Cys Lys  
 595 600

<210> 2519  
 <211> 1815  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2519  
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 ctgccctgct tcctttggat aggcacgcgc ccctttacct ttgcgctcag gctgcaaccg 120  
 tcgcccgaact tttaccacga tgccgcccgc gcagccggcc tgattgtcct gttgttcctc 180  
 acggcaggaa aaaagctgtt tgatgtcaaa atcccaccta tcagcttcct tctgtttgca 240  
 atggcgcgct tttggtatct tcaggcacgc ctgatgaacc tgatttacct cggatgaac 300  
 gacatcgtct cttggatttt catcttactc gccgtcagcg cgtgggcctg ccggagcttg 360  
 gtcgcacact acggacaaga acgcacgcgt accctgtttg cctggtcgct gcttatcggc 420  
 tccttgcttc aatcctgcat cgtcgtcatc cagtttgccg gctgggaaga caccctctg 480  
 tttcaaaaca tcattgttta cagcgggcaa ggcgtaatcg gacacatcgg acagcgcaac 540  
 aacctcggac actacctcat gtggggcata ctgcgccg cctacctcaa cggacaacga 600  
 aaaatcccgc ccgccttggg tgcaatctgc ctgattatgc agaccgccgt tttagggtttg 660  
 gtcaattcgc gcacctctt gacctacata gccgccatcg ccctcatcct tcccttcttg 720  
 tatttccgtt cggacaaaatc caacaggcgg acgatactcg gcatagccgc agccgtattc 780  
 cttaccgcgc tgttccaatt ttccatgaac accattcttg aaacctttac cggcatccgc 840  
 tacgaaaccg ccgtcgaaac cgtcgccaac ggcggtttca cagacctgcc gcgccaatc 900  
 gaatggcgca aagccctcgc cgccttcag tccgcccga tattcgggca cggctggaac 960  
 agttttgccc acaaacctt cctcatcaat gccgaacagc acaacatata cgacaacctc 1020  
 ctcagcaact tgttcaccca ttcccacaac atcgttctcc aactccttgc agagatgggg 1080  
 atcagcggca cgcttctggt tgccgcaacc ctgctgacgg gcattgccgg gctgctgaaa 1140  
 cgccccctga ccccgcatc gcttttcttg atctgcacac ttgccgtcag tatgtgccac 1200  
 agtatgctcg aatatccttt gtggtatgtc tatttctca tccccttcgg actgatgctc 1260  
 tttctgtccc ccgcagaggc ttcagacggc atcgccttca aaaaagccgc caatctcggc 1320  
 atactaaccg cctccgccgc catattcgca ggattgctgc acttggactg gacatacacc 1380  
 cggatgggta acgccttttc ccccgccact gacgacagt ccaaaacct caaccggaaa 1440  
 atcaacgagt tgcgctatat ttccgcaaac agtccgatgc tgtcctttta tgccgacttc 1500  
 tccctcgtaa acttcgccct gccggaatac cccgaaacct agacttgggc ggaagaagca 1560  
 accctcaaat cactaaaata ccgccccac tccgccacct accgcatcgc cctctacctg 1620  
 atcgggcaag gcaaagttgc agaagcaaaa caatggatgc gggcgacaca gtcctattac 1680  
 ccctacctga tgccccgata cgccgacgaa atccgcaaac tgcccgtatg ggccgctg 1740  
 ctaccggaac tgctcaaaga ctgcaaagcc ttccgccg cgcgccgtca tccggaagca 1800  
 aaaccctgca aatga 1815

<210> 2520  
 <211> 604  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2520

Met	Pro	Ala	Glu	Thr	Thr	Val	Ser	Gly	Ala	His	Pro	Ala	Ala	Lys	Leu
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Pro	Ile	Tyr	Ile	Leu	Pro	Cys	Phe	Leu	Trp	Ile	Gly	Ile	Val	Pro	Phe
			20					25					30		
Thr	Phe	Ala	Leu	Arg	Leu	Gln	Pro	Ser	Pro	Asp	Phe	Tyr	His	Asp	Ala
		35					40					45			
Ala	Ala	Ala	Ala	Gly	Leu	Ile	Val	Leu	Leu	Phe	Leu	Thr	Ala	Gly	Lys
		50				55					60				
Lys	Leu	Phe	Asp	Val	Lys	Ile	Pro	Pro	Ile	Ser	Phe	Leu	Leu	Phe	Ala
65					70					75					80
Met	Ala	Ala	Phe	Trp	Tyr	Leu	Gln	Ala	Arg	Leu	Met	Asn	Leu	Ile	Tyr
				85					90					95	
Pro	Gly	Met	Asn	Asp	Ile	Val	Ser	Trp	Ile	Phe	Ile	Leu	Leu	Ala	Val
			100					105					110		
Ser	Ala	Trp	Ala	Cys	Arg	Ser	Leu	Val	Ala	His	Tyr	Gly	Gln	Glu	Arg
		115					120					125			
Ile	Val	Thr	Leu	Phe	Ala	Trp	Ser	Leu	Leu	Ile	Gly	Ser	Leu	Leu	Gln
	130					135					140				
Ser	Cys	Ile	Val	Val	Ile	Gln	Phe	Ala	Gly	Trp	Glu	Asp	Thr	Pro	Leu
145					150					155					160
Phe	Gln	Asn	Ile	Ile	Val	Tyr	Ser	Gly	Gln	Gly	Val	Ile	Gly	His	Ile
			165						170					175	
Gly	Gln	Arg	Asn	Asn	Leu	Gly	His	Tyr	Leu	Met	Trp	Gly	Ile	Leu	Ala
			180					185					190		
Ala	Ala	Tyr	Leu	Asn	Gly	Gln	Arg	Lys	Ile	Pro	Pro	Ala	Leu	Gly	Ala
		195					200					205			
Ile	Cys	Leu	Ile	Met	Gln	Thr	Ala	Val	Leu	Gly	Leu	Val	Asn	Ser	Arg
	210					215					220				
Thr	Ile	Leu	Thr	Tyr	Ile	Ala	Ala	Ile	Ala	Leu	Ile	Leu	Pro	Phe	Trp
225					230					235					240
Tyr	Phe	Arg	Ser	Asp	Lys	Ser	Asn	Arg	Arg	Thr	Ile	Leu	Gly	Ile	Ala
				245					250					255	
Ala	Ala	Val	Phe	Leu	Thr	Ala	Leu	Phe	Gln	Phe	Ser	Met	Asn	Thr	Ile
			260					265					270		
Leu	Glu	Thr	Phe	Thr	Gly	Ile	Arg	Tyr	Glu	Thr	Ala	Val	Glu	Arg	Val
		275					280					285			
Ala	Asn	Gly	Gly	Phe	Thr	Asp	Leu	Pro	Arg	Gln	Ile	Glu	Trp	Arg	Lys
	290					295					300				



Ala Leu Ala Ala Phe Gln Ser Ala Pro Ile Phe Gly His Gly Trp Asn  
 305 310 315 320  
 Ser Phe Ala Gln Gln Thr Phe Leu Ile Asn Ala Glu Gln His Asn Ile  
 325 330 335  
 His Asp Asn Leu Leu Ser Asn Leu Phe Thr His Ser His Asn Ile Val  
 340 345 350  
 Leu Gln Leu Leu Ala Glu Met Gly Ile Ser Gly Thr Leu Leu Val Ala  
 355 360 365  
 Ala Thr Leu Leu Thr Gly Ile Ala Gly Leu Leu Lys Arg Pro Leu Thr  
 370 375 380  
 Pro Ala Ser Leu Phe Leu Ile Cys Thr Leu Ala Val Ser Met Cys His  
 385 390 395 400  
 Ser Met Leu Glu Tyr Pro Leu Trp Tyr Val Tyr Phe Leu Ile Pro Phe  
 405 410 415  
 Gly Leu Met Leu Phe Leu Ser Pro Ala Glu Ala Ser Asp Gly Ile Ala  
 420 425 430  
 Phe Lys Lys Ala Ala Asn Leu Gly Ile Leu Thr Ala Ser Ala Ala Ile  
 435 440 445  
 Phe Ala Gly Leu Leu His Leu Asp Trp Thr Tyr Thr Arg Met Val Asn  
 450 455 460  
 Ala Phe Ser Pro Ala Thr Asp Asp Ser Ala Lys Thr Leu Asn Arg Lys  
 465 470 475 480  
 Ile Asn Glu Leu Arg Tyr Ile Ser Ala Asn Ser Pro Met Leu Ser Phe  
 485 490 495  
 Tyr Ala Asp Phe Ser Leu Val Asn Phe Ala Leu Pro Glu Tyr Pro Glu  
 500 505 510  
 Thr Gln Thr Trp Ala Glu Glu Ala Thr Leu Lys Ser Leu Lys Tyr Arg  
 515 520 525  
 Pro His Ser Ala Thr Tyr Arg Ile Ala Leu Tyr Leu Met Arg Gln Gly  
 530 535 540  
 Lys Val Ala Glu Ala Lys Gln Trp Met Arg Ala Thr Gln Ser Tyr Tyr  
 545 550 555 560  
 Pro Tyr Leu Met Pro Arg Tyr Ala Asp Glu Ile Arg Lys Leu Pro Val  
 565 570 575  
 Trp Ala Pro Leu Leu Pro Glu Leu Leu Lys Asp Cys Lys Ala Phe Ala  
 580 585 590  
 Ala Ala Pro Gly His Pro Glu Ala Lys Pro Cys Lys

<210> 2521  
 <211> 594  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 2521  
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 ttgctcatct gtatcacccg catcggcgca ttggcagtag gcatcgtcag cacattcaac 120  
 ccgaacggcg acaaaaccct ccaaaccgaa ccgcaacaca ccgacagccc ccgcgaaacc 180  
 gaattctggc tgccaaacgg cgccgtcgga caagatgccg cccaaccgga acaccaccac 240  
 gccgcctcat ccgaaccgac acagccggac ggacacagaag aaagcggcag cggactgccg 300  
 tccccctgcc caccgaagaa aaaccggggtc aaaccgcgcc cttcgggatgc ggcccgggca 360  
 gccgattcgt taaccggcac cggaacacaa gctgaaaaca cactcaaaga aacccccgta 420  
 ctgcccacaa acgcccccca tcccgaaccc cgaaaagaaa cacccgaaaa acaggcgcag 480  
 cccaaagaaa caccgaagaa aaaagaaacg cccaaagaaa accataccaa accggacacc 540  
 ccgaaaaaca cgccggccaa accccataaa gagattctcg acaacctctt ttga 594

<210> 2522  
 <211> 197  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 2522  
 Met Ala Lys Lys Pro Asn Lys Pro Phe Arg Leu Thr Pro Lys Leu Leu  
 1 5 10 15  
 Ile Arg Ala Val Leu Leu Ile Cys Ile Thr Ala Ile Gly Ala Leu Ala  
 20 25 30  
 Val Gly Ile Val Ser Thr Phe Asn Pro Asn Gly Asp Lys Thr Leu Gln  
 35 40 45  
 Thr Glu Pro Gln His Thr Asp Ser Pro Arg Glu Thr Glu Phe Trp Leu  
 50 55 60  
 Pro Asn Gly Ala Val Gly Gln Asp Ala Ala Gln Pro Glu His His His  
 65 70 75 80  
 Ala Ala Ser Ser Glu Pro Ala Gln Pro Asp Gly Thr Glu Glu Ser Gly  
 85 90 95  
 Ser Gly Leu Pro Ser Pro Ala Ala Pro Lys Lys Asn Arg Val Lys Pro  
 100 105 110  
 Arg Pro Ser Asp Ala Ala Arg Ala Ala Asp Ser Leu Thr Gly Thr Gly  
 115 120 125  
 Thr Gln Ala Glu Asn Thr Leu Lys Glu Thr Pro Val Leu Pro Thr Asn  
 130 135 140  
 Ala Pro His Pro Glu Pro Arg Lys Glu Thr Pro Glu Lys Gln Ala Gln  
 145 150 155 160

Pro Lys Glu Thr Pro Lys Glu Lys Glu Thr Pro Lys Glu Asn His Thr  
165 170 175

Lys Pro Asp Thr Pro Lys Asn Thr Pro Ala Lys Pro His Lys Glu Ile  
180 185 190

Leu Asp Asn Leu Phe  
195

<210> 2523  
<211> 573  
<212> DNA  
<213> Neisseria meningitidis

<400> 2523  
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ttgctcatct gtatcgccgc catcggcgca ttggcaatag gcatcgtcag cacattcaac 120  
ccgaacggcg acaaaaccct tcaagccgaa ccgcaacaca ccgacagccc ccgcgaaacc 180  
gaattctggc tgccaaacgg cgtagtcgga caagatgccg cccaacccga acaccaccac 240  
gccgcctcat ccgaaccgc acagccggac ggacagacg aaagcggcag cggactgccg 300  
tcccctgccg caccgaagaa aaaccgggtc aaaccgcaac ctgccgacac agctcaaacc 360  
gacaggcagc cggacgacgc cggaacacaa gctgaaaaca cactcaaaga aacccccgta 420  
ctgcccacaa acgtcccccg tcccgaaccc cgaaaagaaa cacccgaaaa acaggcgag 480  
cccaaagaaa cgcccaaaga aaaccatacc aaaccggaca ccccgaaaaa cacgccgccc 540  
aaaccccata aagaaattct cgacaaactc ttc 573

<210> 2524  
<211> 191  
<212> PRT  
<213> Neisseria meningitidis

<400> 2524  
Met Ala Lys Lys Pro Asn Lys Pro Phe Arg Leu Thr Pro Lys Leu Leu  
1 5 10 15  
Ile Arg Ala Val Leu Leu Ile Cys Ile Ala Ala Ile Gly Ala Leu Ala  
20 25 30  
Ile Gly Ile Val Ser Thr Phe Asn Pro Asn Gly Asp Lys Thr Leu Gln  
35 40 45  
Ala Glu Pro Gln His Thr Asp Ser Pro Arg Glu Thr Glu Phe Trp Leu  
50 55 60  
Pro Asn Gly Val Val Gly Gln Asp Ala Ala Gln Pro Glu His His His  
65 70 75 80  
Ala Ala Ser Ser Glu Pro Ala Gln Pro Asp Gly Thr Asp Glu Ser Gly  
85 90 95  
Ser Gly Leu Pro Ser Pro Ala Ala Pro Lys Lys Asn Arg Val Lys Pro  
100 105 110  
Gln Pro Ala Asp Thr Ala Gln Thr Asp Arg Gln Pro Asp Asp Ala Gly  
115 120 125

Thr Gln Ala Glu Asn Thr Leu Lys Glu Thr Pro Val Leu Pro Thr Asn  
 130 135 140

Val Pro Arg Pro Glu Pro Arg Lys Glu Thr Pro Glu Lys Gln Ala Gln  
 145 150 155 160

Pro Lys Glu Thr Pro Lys Glu Asn His Thr Lys Pro Asp Thr Pro Lys  
 165 170 175

Asn Thr Pro Pro Lys Pro His Lys Glu Ile Leu Asp Lys Leu Phe  
 180 185 190

<210> 2525  
 <211> 594  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2525  
 atggcaaaaa aacogaacaa acccttcagg ctgacccccca aactcctgat acgcgccgta 60  
 ttgctcatct gtatcacgcg catcggcgcga ttggcaatag gcatcgtcag cacattcaac 120

ccgaacggcg acaaaaccct ccaaaccgaa ccgcaacaca ccgacagccc ccgcgaaacc 180  
 gaattctggc tgccaaacgg cgtagtcgga caagatgccg cccaaccgga acaccaccac 240  
 gcctcctcat ccgcacccgc acagccggac ggcacagacg aaagcggcag cggactgccg 300  
 tcccctgccg caccgaagaa aaaccgggtc aaaccgcaac ctgccgacac agtcaaacc 360  
 gacaggcagc cggacgacgc cggagcaca gctgaaaaca cactcaaaga aacccccgta 420  
 ctgcccacaa acgtcccccg tccogaaccc cgaaaagaaa caccgaaaaa acaggcacag 480  
 cccaaagaaa caccgaagaa aaaagaaacg cccaaagaaa accataccaa accggacacc 540  
 ccgaaaaaca cgccgcctaa accccataaa gaaattctcg acaacctctt ctga 594

<210> 2526  
 <211> 197  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2526  
 Met Ala Lys Lys Pro Asn Lys Pro Phe Arg Leu Thr Pro Lys Leu Leu  
 1 5 10 15

Ile Arg Ala Val Leu Leu Ile Cys Ile Thr Ala Ile Gly Ala Leu Ala  
 20 25 30

Ile Gly Ile Val Ser Thr Phe Asn Pro Asn Gly Asp Lys Thr Leu Gln  
 35 40 45

Thr Glu Pro Gln His Thr Asp Ser Pro Arg Glu Thr Glu Phe Trp Leu  
 50 55 60

Pro Asn Gly Val Val Gly Gln Asp Ala Ala Gln Pro Glu His His His  
 65 70 75 80

Ala Ser Ser Ser Ala Pro Ala Gln Pro Asp Gly Thr Asp Glu Ser Gly  
 85 90 95

Ser Gly Leu Pro Ser Pro Ala Ala Pro Lys Lys Asn Arg Val Lys Pro  
100 105 110

Gln Pro Ala Asp Thr Ala Gln Thr Asp Arg Gln Pro Asp Asp Ala Gly  
115 120 125

Ala Gln Ala Glu Asn Thr Leu Lys Glu Thr Pro Val Leu Pro Thr Asn  
130 135 140

Val Pro Arg Pro Glu Pro Arg Lys Glu Thr Pro Glu Lys Gln Ala Gln  
145 150 155 160

Pro Lys Glu Thr Pro Lys Glu Lys Glu Thr Pro Lys Glu Asn His Thr  
165 170 175

Lys Pro Asp Thr Pro Lys Asn Thr Pro Pro Lys Pro His Lys Glu Ile  
180 185 190

Leu Asp Asn Leu Phe  
195

<210> 2527  
<211> 279  
<212> DNA  
<213> Neisseria gonorrhoeae

<400> 2527  
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gccgttttcg ccgccaatcc gccgaagac aaacccagc atctgatcaa cggcatcatc 120  
cttgccctgcg aagcgacgtt tttgtttaaa ttcgtgctct ttgaaacat caagcatcat 180  
cttaaacaag ggtttgattt gaaacgtcaa accatgtttc tgtttattcc gattgttttg 240  
ctggttggtg attgtttcca ctatttcggc gcgttttag 279

<210> 2528  
<211> 92  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 2528  
Met Ser Arg Asn Leu Leu Val Arg Trp Leu Ala Val Cys Leu Ile Pro  
1 5 10 15

Leu Ala Thr Leu Ala Val Phe Ala Ala Asn Pro Pro Glu Asp Lys Pro  
20 25 30

Gln His Leu Ile Asn Gly Ile Ile Leu Ala Cys Glu Ala Thr Phe Leu  
35 40 45

Phe Lys Phe Val Leu Phe Glu Thr Ile Lys His His Leu Lys Gln Gly  
50 55 60

Phe Asp Leu Lys Arg Gln Thr Met Phe Leu Phe Ile Pro Ile Val Leu  
65 70 75 80

Leu Val Val Tyr Leu Phe His Tyr Phe Gly Ala Phe  
85 90

<210> 2529  
<211> 279  
<212> DNA  
<213> Neisseria meningitidis

<400> 2529  
atgtcccgaac acctgcttgt ccgctggcctt gccgtctgcc tcatcccggtt ggcgacgctt 60  
gccgttttcg ccgccaatcc gccggaagac aaactccagc atctgatcaa cggcatcatc 120  
cttgccctgcg aagcgacggtt ttgttttaaa ttcgtccttt tcgacaccat caagcatcat 180  
ttgaaacaag agtttgattt gaaacgtcaa actatgttgc tgttttattcc gattatattg 240  
ctgatttgtgt atttgttcca ctattttggc gcgttttag 279

<210> 2530  
<211> 92  
<212> PRT  
<213> Neisseria meningitidis

<400> 2530  
Met Ser Arg Asn Leu Leu Val Arg Trp Leu Ala Val Cys Leu Ile Pro  
1 5 10 15  
Leu Ala Thr Leu Ala Val Phe Ala Ala Asn Pro Pro Glu Asp Lys Leu  
20 25 30  
Gln His Leu Ile Asn Gly Ile Ile Leu Ala Cys Glu Ala Thr Phe Leu  
35 40 45  
Phe Lys Phe Val Leu Phe Asp Thr Ile Lys His His Leu Lys Gln Glu  
50 55 60  
Phe Asp Leu Lys Arg Gln Thr Met Leu Leu Phe Ile Pro Ile Ile Leu  
65 70 75 80  
Leu Ile Val Tyr Leu Phe His Tyr Phe Gly Ala Phe  
85 90

<210> 2531  
<211> 279  
<212> DNA  
<213> Neisseria meningitidis

<400> 2531  
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gccgttttcg ccgccaatcc gccggaagac aaaccccagc atctgattaa cggcatcatc 120  
cttgccctgcg aagcgacggtt ttgtttcaaa ttcgtccttt tcgacaccat caagcatcat 180  
ttgaaacaag agtttgattt gaaacgtcaa actatgttgc tgttttattcc gattatattg 240  
ctgatttgtgt atttgttcca ctattttggc gcgttttag 279

<210> 2532  
<211> 92

<212> PRT  
<213> Neisseria meningitidis

<400> 2532  
Met Ser Arg Asn Leu Leu Val Arg Trp Leu Val Val Cys Leu Ile Pro  
1 5 10 15  
Leu Ala Thr Leu Ala Val Phe Ala Ala Asn Pro Pro Glu Asp Lys Pro  
20 25 30  
Gln His Leu Ile Asn Gly Ile Ile Leu Ala Cys Glu Ala Thr Phe Leu  
35 40 45  
Phe Lys Phe Val Leu Phe Asp Thr Ile Lys His His Leu Lys Gln Glu  
50 55 60  
Phe Asp Leu Lys Arg Gln Thr Met Leu Leu Phe Ile Pro Ile Ile Leu  
65 70 75 80  
Leu Ile Val Tyr Leu Phe His Tyr Phe Gly Ala Phe  
85 90

<210> 2533  
<211> 840  
<212> DNA  
<213> Neisseria gonorrhoeae

<400> 2533  
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cagcagcggg ggggcggagg cgggtggtgtc gccgcgcgaca tcggcacggg gcttgccgat 120  
gcattaaccg cgccgctcga ccataaagac aaaggtttga aatccctaac attggaagcc 180  
tccattcccc aaaacggaac actgaccctg tcggcacaag gtgcggaaaa aactttcaaa 240  
gccggcggca aagacaacag cctcaacacg ggcaaaactga agaacgacaa aatcagccgc 300  
ttcgacttcg tgcaaaaaat cgaagtggac ggacaaacca tcacactggc aagcggcgaa 360  
tttcaaatat acaaacagga tcaactccgcc gtcgttgccc tacggattga aaaaatcaac 420  
aaccccgaca aaatcgacag cctgataaac caacgctcct tccttgtcag cgatttgggc 480  
ggagaacata ccgccttcaa ccaactgcct gacggcaaag ccgagtatca cggcaaagca 540  
ttcagctccg acgatgccga cggaaaactg acctatacca tagatttcgc cgccaaacag 600  
ggacacggca aaatcgaaca cctgaaaaca cccgagcaga atgttgagct tgctccgcc 660  
gaactcaaag cagatgaaaa atcacacgcc gtcattttgg gcgacacgcg ctacggcggc 720  
gaagagaaag gcacttaccg cctcgccctt ttcggcgacc gcgccaaga aatcgctggc 780  
tcggcaaccg tgaagatagg ggaaaaggtt cacgaaatcg gcatcgccga caaacagtag 840

<210> 2534  
<211> 279  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 2534  
Val Asn Arg Thr Thr Phe Cys Cys Leu Ser Leu Thr Ala Gly Pro Asp  
1 5 10 15  
Ser Asp Arg Leu Gln Gln Arg Arg Gly Gly Gly Gly Gly Val Ala Ala  
20 25 30

Asp Ile Gly Thr Gly Leu Ala Asp Ala Leu Thr Ala Pro Leu Asp His  
           35                          40                          45  
 Lys Asp Lys Gly Leu Lys Ser Leu Thr Leu Glu Ala Ser Ile Pro Gln  
           50                          55                          60  
 Asn Gly Thr Leu Thr Leu Ser Ala Gln Gly Ala Glu Lys Thr Phe Lys  
           65                          70                          75                          80  
 Ala Gly Gly Lys Asp Asn Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp  
                           85                          90                          95  
 Lys Ile Ser Arg Phe Asp Phe Val Gln Lys Ile Glu Val Asp Gly Gln  
                   100                          105                          110  
 Thr Ile Thr Leu Ala Ser Gly Glu Phe Gln Ile Tyr Lys Gln Asp His  
           115                          120                          125  
 Ser Ala Val Val Ala Leu Arg Ile Glu Lys Ile Asn Asn Pro Asp Lys  
           130                          135                          140  
 Ile Asp Ser Leu Ile Asn Gln Arg Ser Phe Leu Val Ser Asp Leu Gly  
           145                          150                          155                          160  
 Gly Glu His Thr Ala Phe Asn Gln Leu Pro Asp Gly Lys Ala Glu Tyr  
                   165                          170                          175  
 His Gly Lys Ala Phe Ser Ser Asp Asp Ala Asp Gly Lys Leu Thr Tyr  
                   180                          185                          190  
 Thr Ile Asp Phe Ala Ala Lys Gln Gly His Gly Lys Ile Glu His Leu  
           195                          200                          205  
 Lys Thr Pro Glu Gln Asn Val Glu Leu Ala Ser Ala Glu Leu Lys Ala  
           210                          215                          220  
 Asp Glu Lys Ser His Ala Val Ile Leu Gly Asp Thr Arg Tyr Gly Gly  
           225                          230                          235                          240  
 Glu Glu Lys Gly Thr Tyr Arg Leu Ala Leu Phe Gly Asp Arg Ala Gln  
                   245                          250                          255  
 Glu Ile Ala Gly Ser Ala Thr Val Lys Ile Gly Glu Lys Val His Glu  
                   260                          265                          270  
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<210> 2535

<211> 825

<212> DNA

<213> Neisseria meningitidis

<400> 2535

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gcaccgctcg accataaaga caaagggttg cagtctttga cgctggatca gtccggtcagg 180
aaaaacgaga aactgaagct ggcggcacaa ggtgcggaaa aaacttatgg aaacgggtgac 240
agcctcaata cgggcaaatt gaagaacgac aaggtcagcc gtttcgactt tatccgcca 300
atcgaagtgg acgggcagct cattaccttg gagagtggag agttccaagt atacaaacaa 360
agccattccg ccttaaccgc ctttcagacc gagcaaatac aagattcgga gcattccggg 420
aagatggttg cgaaacgcca gttcagaatc ggcgacatag cgggcgaaca tacatctttt 480
gacaagcttc ccgaaggcgg cagggcgaca tatcgcgga cggcggttcgg ttcagacgat 540
gccggcgga aactgacct caccatagat ttccgcgcca agcagggaaa cggcaaaatc 600
gaacatttga aatcgccaga actcaatgtc gacctggccg ccgccgatat caagccggat 660
ggaaaacgcc atgccgtcat cagcggttcc gtcctttaca accaagccga gaaaggcagt 720
tactccctcg gtatcttttg cggaaaagcc caggaagttg ccggcagcgc ggaagtgaaa 780
accgtaaacy gcatacgcca tatcggcctt gccgccaagc aataa 825

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<210> 2536

<211> 274

<212> PRT

<213> *Neisseria meningitidis*

<400> 2536

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Val Asn Arg Thr Ala Phe Cys Cys Leu Ser Leu Thr Thr Ala Leu Ile
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Leu Thr Ala Cys Ser Ser Gly Gly Gly Gly Val Ala Ala Asp Ile Gly
      20             25             30

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Ala Gly Leu Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys
    35             40             45

```

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Gly Leu Gln Ser Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu Lys
    50             55             60

```

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Leu Lys Leu Ala Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp
    65             70             75             80

```

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Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp
      85             90             95

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Phe Ile Arg Gln Ile Glu Val Asp Gly Gln Leu Ile Thr Leu Glu Ser
    100            105            110

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Gly Glu Phe Gln Val Tyr Lys Gln Ser His Ser Ala Leu Thr Ala Phe
    115            120            125

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Gln Thr Glu Gln Ile Gln Asp Ser Glu His Ser Gly Lys Met Val Ala
    130            135            140

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Lys Arg Gln Phe Arg Ile Gly Asp Ile Ala Gly Glu His Thr Ser Phe
    145            150            155            160

```

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Asp Lys Leu Pro Glu Gly Gly Arg Ala Thr Tyr Arg Gly Thr Ala Phe
    165            170            175

```

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Gly Ser Asp Asp Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala
    180            185            190

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```

Ala Lys Gln Gly Asn Gly Lys Ile Glu His Leu Lys Ser Pro Glu Leu

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195	200	205
Asn Val Asp Leu Ala Ala Ala Asp Ile Lys Pro Asp Gly Lys Arg His		
210	215	220
Ala Val Ile Ser Gly Ser Val Leu Tyr Asn Gln Ala Glu Lys Gly Ser		
225	230	235 240
Tyr Ser Leu Gly Ile Phe Gly Gly Lys Ala Gln Glu Val Ala Gly Ser		
	245	250 255
Ala Glu Val Lys Thr Val Asn Gly Ile Arg His Ile Gly Leu Ala Ala		
	260	265 270

Lys Gln

<210> 2537  
 <211> 825  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2537  
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 agcagcggag gcggcgggtg cgccgcccac atcggcgcgg tgcttgccga tgcactaacc 120  
 gcaccgctcg accataaaga caaaagtttg cagtctttga cgctggatca gtccgtcagg 180  
 aaaaacgaga aactgaagct ggcggcacaa ggtgcggaaa aaacttatgg aaacggcgac 240  
 agcctcaata cgggcaaatt gaagaacgac aaggtcagcc gcttcgactt tatccgtcaa 300  
 atcgaagtgg acgggcagct cattaccttg gagagcggag agttccaagt gtacaaacaa 360  
 agccattccg ccttaaccgc ctttcagacc gagcaagtac aagattcgga gcattcaggg 420  
 aagatggttg cgaaacgcca gttcagaatc ggcgatatag cgggtgaaca tacatctttt 480  
 gacaagcttc ccgaaggcgg cagggcgaca tatcgcgga cggcattcgg ttcagacgat 540  
 gccagtggaa aactgaccta caccatagat ttcgccgcca agcagggaca cggcaaaatc 600  
 gaacatttga aatcgccaga actcaatggt gacctggccg cctccgatat caagccggat 660  
 aaaaaacgcc atgccgtcat cagcggttcc gtcctttaca accaagccga gaaaggcagt 720  
 tactctctag gcattctttg cgggcaagcc caggaagtgg ccggcagcgc agaagtggaa 780  
 accgcaaacg gcatacgcca tatcgttctt gccgccaagc agtaa 825

<210> 2538  
 <211> 274  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2538  
 Val Asn Arg Thr Ala Phe Cys Cys Leu Ser Leu Thr Ala Ala Leu Ile  
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 Leu Thr Ala Cys Ser Ser Gly Gly Gly Gly Val Ala Ala Asp Ile Gly  
 20 25 30  
 Ala Val Leu Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys  
 35 40 45  
 Ser Leu Gln Ser Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu Lys  
 50 55 60

Leu Lys Leu Ala Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp  
 65 70 75 80  
 Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp  
 85 90 95  
 Phe Ile Arg Gln Ile Glu Val Asp Gly Gln Leu Ile Thr Leu Glu Ser  
 100 105 110  
 Gly Glu Phe Gln Val Tyr Lys Gln Ser His Ser Ala Leu Thr Ala Leu  
 115 120 125  
 Gln Thr Glu Gln Val Gln Asp Ser Glu His Ser Gly Lys Met Val Ala  
 130 135 140  
 Lys Arg Gln Phe Arg Ile Gly Asp Ile Ala Gly Glu His Thr Ser Phe  
 145 150 155 160  
 Asp Lys Leu Pro Glu Gly Gly Arg Ala Thr Tyr Arg Gly Thr Ala Phe  
 165 170 175  
 Gly Ser Asp Asp Ala Ser Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala  
 180 185 190  
 Ala Lys Gln Gly His Gly Lys Ile Glu His Leu Lys Ser Pro Glu Leu  
 195 200 205  
 Asn Val Asp Leu Ala Ala Ser Asp Ile Lys Pro Asp Lys Lys Arg His  
 210 215 220  
 Ala Val Ile Ser Gly Ser Val Leu Tyr Asn Gln Ala Glu Lys Gly Ser  
 225 230 235 240  
 Tyr Ser Leu Gly Ile Phe Gly Gly Gln Ala Gln Glu Val Ala Gly Ser  
 245 250 255  
 Ala Glu Val Glu Thr Ala Asn Gly Ile Arg His Ile Gly Leu Ala Ala  
 260 265 270

Lys Gln

<210> 2539

<211> 2352

<212> DNA

<213> Neisseria meningitidis

<400> 2539

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 cagaaaactg ccccgttcag ttcaacgcct gcctgcaacc ggcctttgca actgccgcgc 180  
 aacacttatt tgggggagga ttggtcgcgg ttaagtgccg acaaatacaa ccttttctca 240  
 ggattcaaac atgtgtttga caacggttg cagctcaatg ccgaagtgtc ttataccaag 300  
 aatgaatccg atgcgaaggt ggggcagttt tttctgaaaa acgaatatgc ggcggtttg 360  
 tcgggtgagg atgcggtagg ctttttgact gaaaaaacg aagtcatccc gttcgaagccg 420

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aaagataagg cattggagaa actgaaagca tatcgtgatg aaaccgcaa ggaataccgg 480
gagcgcaaaag acgattttgt taaaaaccgt ttcgataata ctgctttcga acagtatcgc 540
agccgcccgtg ccgcagaacg caaagccggt tttgacaagt gtatgagtga ccctttcgcg 600
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cattcgctga ctgccagcac gcgtttcaac gtaaccggcc gactgcacct tttgggcggg 1440
ctgcactaca cgcgctatga gacttcgcaa accaaagata tgcctgtccg ctatgggcag 1500
ccggcaagcg attttcagac ggcatcgagc attagggcgg atcaggacca ttacacggcc 1560
aagatgcaag gtcataaatt gacgccctat gcaggcatta cctatgactt gacaccgcaa 1620
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cgtacgcgcg gcgcaaacaa cttctacgga gagccgcgca ctgtcagcat gaaactggat 2340
tggcagtttt aa 2352

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<210> 2540

<211> 783

<212> PRT

<213> *Neisseria meningitidis*

<400> 2540

Met Val Tyr Gly Ile Ala Glu Ala Asp Ala Gly Asp Ser Ser Val Leu  
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20 25 30

Gly Ile Ile Leu Pro Cys Glu Asn Gln Lys Thr Ala Pro Phe Ser Ser  
35 40 45

Thr Pro Ala Cys Asn Arg Pro Leu Gln Leu Pro Arg Asn Thr Tyr Leu  
50 55 60

Gly Glu Asp Trp Ser Arg Leu Ser Ala Asp Lys Tyr Asn Leu Phe Ser  
65 70 75 80

Gly	Phe	Lys	His	Val	Phe	Asp	Asn	Gly	Trp	Gln	Leu	Asn	Ala	Glu	Val	85	90	95
Ser	Tyr	Thr	Lys	Asn	Glu	Ser	Asp	Ala	Lys	Val	Gly	Gln	Phe	Phe	Leu	100	105	110
Lys	Asn	Glu	Tyr	Ala	Ala	Gly	Leu	Ser	Gly	Glu	Asp	Ala	Val	Gly	Phe	115	120	125
Leu	Thr	Glu	Lys	Asn	Glu	Val	Ile	Pro	Phe	Glu	Pro	Lys	Asp	Lys	Ala	130	135	140
Leu	Glu	Lys	Leu	Lys	Ala	Tyr	Arg	Asp	Glu	Thr	Ala	Lys	Glu	Tyr	Arg	145	150	155
Glu	Arg	Lys	Asp	Asp	Phe	Val	Lys	Asn	Arg	Phe	Asp	Asn	Thr	Ala	Phe	165	170	175
Glu	Gln	Tyr	Arg	Ser	Arg	Arg	Ala	Ala	Glu	Arg	Lys	Ala	Gly	Phe	Asp	180	185	190
Lys	Cys	Met	Ser	Asp	Pro	Phe	Ala	Leu	Asp	Phe	Ile	Cys	Gln	Gly	Ser	195	200	205
Trp	Gly	Asp	Pro	Gly	Val	Asp	Ala	Asp	Lys	Ala	Glu	Phe	Val	Asp	Lys	210	215	220
Ala	Leu	Ala	Lys	Glu	Gly	Ile	Phe	Asn	Asn	Ala	Ala	Gln	Arg	Phe	Pro	225	230	235
Asn	Ser	Leu	Tyr	Asp	Ser	Ser	Phe	Asn	Arg	Lys	Ala	Thr	Ala	Asn	Arg	245	250	255
Arg	Tyr	Ser	Tyr	Met	Pro	Leu	Arg	His	Thr	Lys	Asp	Asp	Arg	Gln	Trp	260	265	270
Gly	Ile	Lys	Leu	Asp	Leu	Thr	Gly	Thr	Tyr	Gly	Leu	Phe	Gly	Arg	Glu	275	280	285
His	Asp	Phe	Phe	Val	Gly	Tyr	Ala	Tyr	Gly	Asp	Glu	Lys	Ile	Arg	Ser	290	295	300
Glu	Tyr	Leu	Glu	Ile	Tyr	Glu	Arg	Arg	Tyr	Arg	Val	Arg	Pro	Asn	Thr	305	310	315
Gly	Ala	Thr	His	Gly	Val	Tyr	Ala	Gly	Ser	Cys	Gln	Glu	Glu	Pro	Asp	325	330	335
Gly	Asp	Leu	Ser	Ser	Pro	Leu	Val	Arg	Gly	His	Lys	Glu	Pro	Asp	Trp	340	345	350
Gln	Ala	Tyr	Asp	Glu	Lys	Gly	Asn	Arg	Thr	Val	Tyr	Ala	Glu	Glu	Cys	355	360	365
Arg	Asn	Ala	Lys	Lys	Ile	Lys	Thr	Glu	Pro	Lys	Leu	Asp	Ala	Glu	Gly	370	375	380

Lys Gln Val Tyr Tyr Tyr Asp Glu Tyr Ser Gly Ser Arg Thr Pro Val  
 385 390 395 400  
 Tyr Val Asp Val Tyr Glu Leu Asp Glu Lys Gly Asn Lys Ile Gln Glu  
 405 410 415  
 Thr Asn Pro Asp Gly Thr Pro Ala Phe Thr Gly Phe Ser Gly Thr Val  
 420 425 430  
 Pro Val Trp Lys Thr Val Lys Val Ala Asp Asp His Val Pro Ala Leu  
 435 440 445  
 Tyr Asn Tyr Ala Lys Tyr Leu Asn Thr Asn Lys Thr His Ser Leu Thr  
 450 455 460  
 Ala Ser Thr Arg Phe Asn Val Thr Gly Arg Leu His Leu Leu Gly Gly  
 465 470 475 480  
 Leu His Tyr Thr Arg Tyr Glu Thr Ser Gln Thr Lys Asp Met Pro Val  
 485 490 495  
 Arg Tyr Gly Gln Pro Ala Ser Asp Phe Gln Thr Ala Ser Ser Ile Arg  
 500 505 510  
 Ala Asp Gln Asp His Tyr Thr Ala Lys Met Gln Gly His Lys Leu Thr  
 515 520 525  
 Pro Tyr Ala Gly Ile Thr Tyr Asp Leu Thr Pro Gln Gln Ser Ile Tyr  
 530 535 540  
 Gly Ser Tyr Thr Lys Ile Phe Lys Gln Gln Asp Asn Val Asp Val Ser  
 545 550 555 560  
 Ala Lys Thr Val Leu Pro Pro Leu Val Gly Thr Asn Tyr Glu Val Gly  
 565 570 575  
 Trp Lys Gly Ala Phe Leu Gln Gly Arg Leu Asn Ala Ser Phe Ala Leu  
 580 585 590  
 Phe Tyr Leu Glu Gln Lys Asn Arg Thr Val Val Asp Phe Gly Tyr Val  
 595 600 605  
 Pro Gly Ala Gly Gly Lys Gln Gly Ser Phe Gln Thr Val Ala Lys Pro  
 610 615 620  
 Ile Gly Lys Val Val Ser Arg Gly Ala Glu Phe Glu Leu Ser Gly Glu  
 625 630 635 640  
 Leu Asn Glu Asp Trp Lys Val Phe Ala Gly Tyr Thr Tyr Asn Lys Ser  
 645 650 655  
 Arg Tyr Lys Asn Ala Ala Glu Val Asn Ala Glu Arg Leu Ala Lys Asn  
 660 665 670  
 Ser Ser Ala Asp Pro Tyr Asn Phe Ser Asn Phe Thr Pro Val His Ile  
 675 680 685

Phe Arg Phe Gly Thr Ser Phe His Ile Pro Asn Thr Gly Leu Thr Val  
690 695 700

Gly Gly Gly Val Ser Ala Gln Ser Gly Thr Ser Ser Leu Tyr Asn Ile  
705 710 715 720

Arg Gln Gly Gly Tyr Gly Leu Ile Asp Gly Phe Val Arg Tyr Glu Leu  
725 730 735

Gly Lys His Ala Lys Leu Ser Leu Ile Gly Thr Asn Leu Asn Gly Arg  
740 745 750

Thr Tyr Phe Glu Asn Asn Tyr Asn Arg Thr Arg Gly Ala Asn Asn Phe  
755 760 765

Tyr Gly Glu Pro Arg Thr Val Ser Met Lys Leu Asp Trp Gln Phe  
770 775 780

<210> 2541

<211> 2352

<212> DNA

<213> *Neisseria meningitidis*

<400> 2541

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ctgcactaca cgcgctatga aacctgcaa accaaagata tgctgtccg ctatgggcag 1500
ccggcaagcg attttcagac ggcatcgagc attaaggcgg atcaggacca ttatacggcc 1560
aagatgcaag gtcataaatt gacgccctat gcaggcatta cctatgattt gacaccgcaa 1620
cagagtattt acggaagtta taccaaaatc ttcaaacagc aggataatgt cgatgtcagt 1680
gccaaaaccg ttttaccgcc tttggtcggc acaaactatg aggtaggctg gaaaggcgcg 1740
ttcttgcaag gacggctgaa tgcttcgttc gcattgtttt acctcgaaca gaaaaaccgc 1800
acggtcgtcg attttggcta tgttcccgga gcaggcgcca agcaggggtc gttccaaacc 1860
gttgccaaac cgataggcaa agtggtcagc aggggtgcgg aattcgagtt gtcgggtgag 1920

```

```

ttgaacgaag attggaaagt ctttgcggtggt tacacctaca acaagagccg ctacaaaaaac 1980
gccgccgaag tcaacgccga acgcctcgcc aaaaacacag gcgcagaccc gtacaacttc 2040
agcaatttca caccggtgca catattccgt ttcggaacga gcttccatat accgaatacg 2100
gggctgaccg tcggcgggcg cgtgtccgca caaagcggca caagcagtct gtataacatc 2160
aggcagggcg gctacgggct gatagacggt ttcgtccggt acgaattggg caaacacgct 2220
aaattgagcc tcatcggtac gaacttaaac ggacgcactt attttgagaa caactacaac 2280
cgtagcgcg gcgcaaacaa cttctatgga gagccgcgca ctgtcagcat gaaactggat 2340
tggcagtttt aa 2352

```

<210> 2542

<211> 783

<212> PRT

<213> Neisseria meningitidis

<400> 2542

```

Met Val Tyr Gly Ile Ala Glu Ala Asp Ala Gly Asp Ser Ser Val Leu
  1             5             10             15

```

```

Thr Leu Gly Gly Met Tyr Gln Lys Ser Arg Glu Val Pro Asp Phe Ser
      20             25             30

```

```

Gly Ile Ile Leu Ser Cys Glu Asn Gln Lys Thr Ala Pro Phe Ser Ser
      35             40             45

```

```

Thr Pro Ala Cys Asn Arg Pro Leu Gln Leu Pro Arg Asn Thr Tyr Leu
      50             55             60

```

```

Gly Glu Asp Trp Ser Arg Leu Ser Ala Asp Lys Tyr Asn Leu Phe Ser
      65             70             75             80

```

```

Gly Phe Lys His Val Phe Asp Asn Gly Trp Gln Leu Asn Ala Glu Val
      85             90             95

```

```

Ser Tyr Thr Lys Asn Glu Ser Asp Ala Lys Val Gly Gln Phe Phe Leu
     100             105             110

```

```

Lys Asn Glu His Ala Ala Gly Leu Ser Asp Glu Asp Ala Val Gly Phe
     115             120             125

```

```

Leu Thr Glu Lys Asn Glu Val Ile Pro Phe Glu Pro Lys Asp Lys Ala
     130             135             140

```

```

Leu Glu Lys Leu Lys Ala Tyr Arg Asp Glu Thr Ala Lys Glu Tyr Arg
     145             150             155             160

```

```

Glu Arg Lys Asp Asp Phe Val Lys Asn Arg Phe Asp Asn Thr Ala Phe
     165             170             175

```

```

Glu Gln Tyr Arg Ser Arg Arg Ala Ala Glu Arg Lys Ala Gly Phe Asp
     180             185             190

```

```

Glu Cys Met Ser Ala Pro Phe Ala Leu Asp Phe Ile Cys Gln Gly Ser
     195             200             205

```

```

Trp Gly Asp Pro Gly Val Asp Ala Asp Lys Ser Glu Phe Val Asp Lys
     210             215             220

```



Ala	Leu	Ala	Lys	Glu	Gly	Ile	Phe	Asn	Asn	Ala	Ala	Gln	Arg	Phe	Pro	225	230	235	240
Asn	Ser	Leu	Tyr	Asp	Ser	Ser	Phe	Asn	Arg	Lys	Ala	Thr	Ala	Asn	Arg	245	250	255	
Arg	Tyr	Ser	Tyr	Met	Pro	Leu	Arg	His	Thr	Lys	Asp	Asp	Arg	Gln	Trp	260	265	270	
Gly	Ile	Lys	Leu	Asp	Leu	Thr	Gly	Thr	Tyr	Gly	Leu	Phe	Gly	Arg	Glu	275	280	285	
His	Asp	Phe	Phe	Val	Gly	Tyr	Ala	Tyr	Gly	Asp	Glu	Lys	Ile	Arg	Ser	290	295	300	
Glu	Tyr	Leu	Glu	Ile	Tyr	Glu	Arg	Arg	His	Arg	Val	Arg	Pro	Asn	Thr	305	310	315	320
Gly	Ala	Thr	His	Gly	Val	Tyr	Ala	Gly	Ser	Cys	Gln	Gly	Glu	Pro	Asp	325	330	335	
Gly	Asp	Leu	Ser	Ser	Pro	Leu	Val	Arg	Gly	His	Lys	Glu	Pro	Asp	Trp	340	345	350	
Gln	Ala	Tyr	Asp	Glu	Lys	Gly	Asn	Arg	Thr	Val	Tyr	Ala	Glu	Glu	Cys	355	360	365	
Arg	Asn	Ala	Lys	Lys	Ile	Lys	Thr	Glu	Pro	Lys	Leu	Asp	Ala	Glu	Gly	370	375	380	
Lys	Gln	Val	Tyr	Tyr	Tyr	Asp	Glu	Tyr	Ser	Gly	Ser	Arg	Thr	Pro	Val	385	390	395	400
Tyr	Val	Asp	Val	Tyr	Glu	Leu	Asp	Glu	Lys	Gly	Asn	Lys	Ile	Gln	Glu	405	410	415	
Thr	Asn	Pro	Asp	Gly	Thr	Pro	Ala	Phe	Thr	Gly	Phe	Ser	Gly	Thr	Val	420	425	430	
Pro	Val	Trp	Lys	Thr	Val	Lys	Val	Ala	Asp	Asp	His	Val	Pro	Ala	Leu	435	440	445	
Tyr	Asn	Tyr	Ala	Lys	Tyr	Leu	Asn	Thr	Asn	Lys	Thr	His	Ser	Leu	Thr	450	455	460	
Ala	Gly	Thr	Arg	Phe	Asn	Val	Thr	Gly	Arg	Leu	His	Leu	Leu	Gly	Gly	465	470	475	480
Leu	His	Tyr	Thr	Arg	Tyr	Glu	Thr	Ser	Gln	Thr	Lys	Asp	Met	Pro	Val	485	490	495	
Arg	Tyr	Gly	Gln	Pro	Ala	Ser	Asp	Phe	Gln	Thr	Ala	Ser	Ser	Ile	Lys	500	505	510	
Ala	Asp	Gln	Asp	His	Tyr	Thr	Ala	Lys	Met	Gln	Gly	His	Lys	Leu	Thr	515	520	525	

Pro Tyr Ala Gly Ile Thr Tyr Asp Leu Thr Pro Gln Gln Ser Ile Tyr  
530 535 540

Gly Ser Tyr Thr Lys Ile Phe Lys Gln Gln Asp Asn Val Asp Val Ser  
545 550 555 560

Ala Lys Thr Val Leu Pro Pro Leu Val Gly Thr Asn Tyr Glu Val Gly  
565 570 575

Trp Lys Gly Ala Phe Leu Gln Gly Arg Leu Asn Ala Ser Phe Ala Leu  
580 585 590

Phe Tyr Leu Glu Gln Lys Asn Arg Thr Val Val Asp Phe Gly Tyr Val  
595 600 605

Pro Gly Ala Gly Gly Lys Gln Gly Ser Phe Gln Thr Val Ala Lys Pro  
610 615 620

Ile Gly Lys Val Val Ser Arg Gly Ala Glu Phe Glu Leu Ser Gly Glu  
625 630 635 640

Leu Asn Glu Asp Trp Lys Val Phe Ala Gly Tyr Thr Tyr Asn Lys Ser  
645 650 655

Arg Tyr Lys Asn Ala Ala Glu Val Asn Ala Glu Arg Leu Ala Lys Asn  
660 665 670

Thr Gly Ala Asp Pro Tyr Asn Phe Ser Asn Phe Thr Pro Val His Ile  
675 680 685

Phe Arg Phe Gly Thr Ser Phe His Ile Pro Asn Thr Gly Leu Thr Val  
690 695 700

Gly Gly Gly Val Ser Ala Gln Ser Gly Thr Ser Ser Leu Tyr Asn Ile  
705 710 715 720

Arg Gln Gly Gly Tyr Gly Leu Ile Asp Gly Phe Val Arg Tyr Glu Leu  
725 730 735

Gly Lys His Ala Lys Leu Ser Leu Ile Gly Thr Asn Leu Asn Gly Arg  
740 745 750

Thr Tyr Phe Glu Asn Asn Tyr Asn Arg Thr Arg Gly Ala Asn Asn Phe  
755 760 765

Tyr Gly Glu Pro Arg Thr Val Ser Met Lys Leu Asp Trp Gln Phe  
770 775 780

<210> 2543

<211> 564

<212> DNA

<213> Neisseria meningitidis

<400> 2543

atgaatcaaa atcatttttc acttaaaatt ctgaccgtta tgctgttatc ggcttacggt 60

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ggttcttttg cagacgggtgt tgtgcctggt tcagacggca ataccgtcag tctggatacg 120
gtcaatgtac gcggtctctca tgctttgttg ggcaagaccg aaaagacccg ttcttatacg 180
atagatcgga tgtccaccgc cacaggtatg aggattgcgg gcaaggatac gccgcagtcg 240
gtcagcgta tcacgcgcag ccgccttgac gataaggcgg tgcatacgct tgaagaggca 300
atgaaaaaca cgacgggtgt caacgttggt cgcgattcag gcttgacag gcggtttttg 360
tcacgcgggt tctatattga tcagattggt gaagacggta tgaccgtcaa tgttcaggc 420
cgttcgggat atacggcgaa aatcgacgtg tctccgagta ccgatttggc ggtttatgac 480
catattgaag ttgtacgggg tgcaacgggg ttgacccaat ccaattcaga gccgggagga 540
accgtcaatt tgatccgtaa gtga 564

```

<210> 2544

<211> 187

<212> PRT

<213> Neisseria meningitidis

<400> 2544

```

Met Asn Gln Asn His Phe Ser Leu Lys Ile Leu Thr Val Met Leu Leu
  1                      5                      10                      15

```

```

Ser Ala Tyr Gly Gly Ser Phe Ala Asp Gly Val Val Pro Val Ser Asp
          20                      25                      30

```

```

Gly Asn Thr Val Ser Leu Asp Thr Val Asn Val Arg Gly Ser His Ala
      35                      40                      45

```

```

Leu Leu Gly Lys Thr Glu Lys Thr Arg Ser Tyr Thr Ile Asp Arg Met
      50                      55                      60

```

```

Ser Thr Ala Thr Gly Met Arg Ile Ala Gly Lys Asp Thr Pro Gln Ser
      65                      70                      75                      80

```

```

Val Ser Val Ile Thr Arg Ser Arg Leu Asp Asp Lys Ala Val His Thr
          85                      90                      95

```

```

Leu Glu Glu Ala Met Lys Asn Thr Thr Gly Val Asn Val Val Arg Asp
      100                      105                      110

```

```

Ser Gly Leu Gln Thr Arg Phe Leu Ser Arg Gly Phe Tyr Ile Asp Gln
      115                      120                      125

```

```

Ile Gly Glu Asp Gly Met Thr Val Asn Val Ala Gly Arg Ser Gly Tyr
      130                      135                      140

```

```

Thr Ala Lys Ile Asp Val Ser Pro Ser Thr Asp Leu Ala Val Tyr Asp
      145                      150                      155                      160

```

```

His Ile Glu Val Val Arg Gly Ala Thr Gly Leu Thr Gln Ser Asn Ser
          165                      170                      175

```

```

Glu Pro Gly Gly Thr Val Asn Leu Ile Arg Lys
      180                      185

```

<210> 2545

<211> 564

<212> DNA  
<213> Neisseria meningitidis

<400> 2545  
atgaatcaaa atcatttttc acttaaaatt ctgaccgtta tgctgttata ggcttacggt 60  
ggttcttttg cagacggtgt tgtgcctggt tcagacggca ataccgtcag tttggatacg 120  
gtcaatgtac gcggctctca tgctctgtcg ggcaagaccg agaagaccg ttcttatacg 180  
atagatcgga tgtccaccgc cacaggatat aggattgcgg gcaaggatac gccgcagtcg 240  
gtcagcggtca tcacgcgcag ccgccttgac gataaggcgg tgcatacgct tgaagaggca 300  
atgaaaaaca cgacgggtgt caacgttggt cgcgattcag gcttgcagac gcgggtttttg 360  
tcacgcggtt tctatatattga tcagattggt gaagacggta ttaccgtcaa tgttgcaggc 420  
cgttcgggat atacggcgaa aatcgacgtg tctccgagta ccgatttggc ggtttatgac 480  
catattgaag ttgtacgggg tgcaacgggg ttgacccaat ccaattcaga gccgggtgga 540  
accgtcaatt tgatccgtaa gcga 564

<210> 2546  
<211> 188  
<212> PRT  
<213> Neisseria meningitidis

<400> 2546  
Met Asn Gln Asn His Phe Ser Leu Lys Ile Leu Thr Val Met Leu Leu  
1 5 10 15  
Ser Ala Tyr Gly Gly Ser Phe Ala Asp Gly Val Val Pro Val Ser Asp  
20 25 30  
Gly Asn Thr Val Ser Leu Asp Thr Val Asn Val Arg Gly Ser His Ala  
35 40 45  
Leu Ser Gly Lys Thr Glu Lys Thr Arg Ser Tyr Thr Ile Asp Arg Met  
50 55 60  
Ser Thr Ala Thr Gly Met Arg Ile Ala Gly Lys Asp Thr Pro Gln Ser  
65 70 75 80  
Val Ser Val Ile Thr Arg Ser Arg Leu Asp Asp Lys Ala Val His Thr  
85 90 95  
Leu Glu Glu Ala Met Lys Asn Thr Thr Gly Val Asn Val Val Arg Asp  
100 105 110  
Ser Gly Leu Gln Thr Arg Phe Leu Ser Arg Gly Phe Tyr Ile Asp Gln  
115 120 125  
Ile Gly Glu Asp Gly Ile Thr Val Asn Val Ala Gly Arg Ser Gly Tyr  
130 135 140  
Thr Ala Lys Ile Asp Val Ser Pro Ser Thr Asp Leu Ala Val Tyr Asp  
145 150 155 160  
His Ile Glu Val Val Arg Gly Ala Thr Gly Leu Thr Gln Ser Asn Ser  
165 170 175  
Glu Pro Gly Gly Thr Val Asn Leu Ile Arg Lys Arg  
180 185

<210> 2547  
 <211> 1596  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2547  
 atgaaaccgt taaaaacatt agaatttgga tttgtggatg ctgcaaacta cagaagaaga 60  
 gaaaataaag atttatattaa ccgaatattt gtaaaaggag aatatttgga tgaattatgt 120  
 gaaccaaata tttcgttttt aatcggagaa aagggaactg gaaagacagc atatgctgtt 180  
 tattttaacta ataacttcta taaaaacata catgccacta ctaagtttgt tcgtgaaacc 240  
 gattattcaa aattttattca gctaaagaaa gcaagacact taactgtttc agattttaca 300  
 agtatttgga aagtcatttt atatctgttg atatcaaadc aaatcaaagc taaagaaaac 360  
 ggaatattat cttcaatatt taataaattt aaagccttag atgaggctat aaatgaatat 420  
 tattatggcg cttttgatcc ggaaattgta caagcaataa ctttaataga aaattcaaaa 480  
 gaagctgcgg aaatgatttt tggaaaattt gttaaactag gtgaagagga atcccaacaa 540  
 ataactttta cagaaagtaa attccaagca aatttagggt ttattgaaag aaaatttaaa 600  
 gatgctttat ctcagtttaa gctaaaagat aatcatattt tgttttattga tgggatagat 660  
 attagaccat cacagattcc atttgatgaa tatcatgagt gtgtaaaagg tcttgctaac 720  
 gccatatgga tgttaaataa tgatatcttc ccttccatta aagatagtaa gggaaggatg 780  
 agagttgtgt tattgattag acctgatatc tttgattcat taggtttaca aaatcaaat 840  
 accaaaacttc aagataattc agtattttta gactggagga cggattataa atcttataga 900  
 agttcaaaga tttttggcgt ttttgatcat cttttgagaa cccagcaaga aaaacaagat 960  
 agtttagaaa aaggcaactc atgggattat tattttccat ggaatgctcc taatttacat 1020  
 gatgagtata aaaatttaac ttcattttatt agcttcctaa gaaaatcgta ttatcgacct 1080  
 cgcgatattc ttcagatgct tactttgcta caaaaaata agaaaagtaa ggaagattat 1140  
 gtcgtagcag aagattttga taatacttct tttcaaagag aatactcgat atatttactt 1200  
 ggtgaaatca aagatcatct tttgttttat tatagtcaaa gtgattatca aaatttcctg 1260  
 aaattttttg aattttttaa cgggaaagat agatttaaat atagtgattt tttaaaagca 1320  
 tttgaacgtt tgaaaaagca cttacaaaca acatcagtggt aaatacctaa atttatgagt 1380  
 actgctaagt agtttttgca atttttattt gacttgaatg ttattgctta tttagataac 1440  
 ccagaagatg aaacgaaacc atatatccat tgggtgcttta aagatagaaa ttatgcaaat 1500  
 atttctccta aaataaaaac tgaaactgaa tatttaatat tttcaggatt atcaaaagcc 1560  
 cttgatgttg gtactccatt taagaacaaa cagtaa 1596

<210> 2548  
 <211> 531  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2548  
 Met Lys Pro Leu Lys Thr Leu Glu Phe Gly Phe Val Asp Ala Ala Asn  
 1 5 10 15  
 Tyr Arg Arg Arg Glu Asn Lys Asp Leu Phe Asn Arg Ile Phe Val Lys  
 20 25 30  
 Gly Glu Tyr Leu Asp Glu Leu Cys Glu Pro Asn Ile Ser Phe Leu Ile  
 35 40 45  
 Gly Glu Lys Gly Thr Gly Lys Thr Ala Tyr Ala Val Tyr Leu Thr Asn  
 50 55 60  
 Asn Phe Tyr Lys Asn Ile His Ala Thr Thr Lys Phe Val Arg Glu Thr  
 65 70 75 80

Asp Tyr Ser Lys Phe Ile Gln Leu Lys Lys Ala Arg His Leu Thr Val  
                     85                    90                    95

Ser Asp Phe Thr Ser Ile Trp Lys Val Ile Leu Tyr Leu Leu Ile Ser  
                     100                    105                    110

Asn Gln Ile Lys Cys Lys Glu Asn Gly Ile Leu Ser Ser Ile Phe Asn  
                     115                    120                    125

Lys Phe Lys Ala Leu Asp Glu Ala Ile Asn Glu Tyr Tyr Tyr Gly Ala  
                     130                    135                    140

Phe Asp Pro Glu Ile Val Gln Ala Ile Thr Leu Ile Glu Asn Ser Lys  
 145                    150                    155                    160

Glu Ala Ala Glu Met Ile Phe Gly Lys Phe Val Lys Leu Gly Glu Glu  
                     165                    170                    175

Glu Ser Gln Gln Ile Thr Phe Thr Glu Ser Lys Phe Gln Ala Asn Leu  
                     180                    185                    190

Gly Phe Ile Glu Arg Lys Phe Lys Asp Ala Leu Ser Gln Leu Lys Leu  
                     195                    200                    205

Lys Asp Asn His Ile Leu Phe Ile Asp Gly Ile Asp Ile Arg Pro Ser  
                     210                    215                    220

Gln Ile Pro Phe Asp Glu Tyr His Glu Cys Val Lys Gly Leu Ala Asn  
 225                    230                    235                    240

Ala Ile Trp Met Leu Asn Asn Asp Ile Phe Pro Ser Ile Lys Asp Ser  
                     245                    250                    255

Lys Gly Arg Met Arg Val Val Leu Leu Ile Arg Pro Asp Ile Phe Asp  
                     260                    265                    270

Ser Leu Gly Leu Gln Asn Gln Asn Thr Lys Leu Gln Asp Asn Ser Val  
                     275                    280                    285

Phe Leu Asp Trp Arg Thr Asp Tyr Lys Ser Tyr Arg Ser Ser Lys Ile  
                     290                    295                    300

Phe Gly Val Phe Asp His Leu Leu Arg Thr Gln Gln Glu Lys Gln Asp  
 305                    310                    315                    320

Ser Leu Glu Lys Gly Asn Ser Trp Asp Tyr Tyr Phe Pro Trp Asn Ala  
                     325                    330                    335

Pro Asn Leu His Asp Glu Tyr Lys Asn Leu Thr Ser Phe Ile Ser Phe  
                     340                    345                    350

Leu Arg Lys Ser Tyr Tyr Arg Pro Arg Asp Ile Leu Gln Met Leu Thr  
                     355                    360                    365

Leu Leu Gln Lys Asn Lys Lys Ser Lys Glu Asp Tyr Val Val Ala Glu  
                     370                    375                    380

Asp Phe Asp Asn Thr Ser Phe Gln Arg Glu Tyr Ser Ile Tyr Leu Leu  
 385 390 395 400  
 Gly Glu Ile Lys Asp His Leu Leu Phe Tyr Tyr Ser Gln Ser Asp Tyr  
 405 410 415  
 Gln Asn Phe Leu Lys Phe Phe Glu Phe Leu Asn Gly Lys Asp Arg Phe  
 420 425 430  
 Lys Tyr Ser Asp Phe Leu Lys Ala Phe Glu Arg Leu Lys Lys His Leu  
 435 440 445  
 Gln Thr Thr Ser Val Glu Ile Pro Lys Phe Met Ser Thr Ala Asn Glu  
 450 455 460  
 Phe Leu Gln Phe Leu Phe Asp Leu Asn Val Ile Ala Tyr Leu Asp Asn  
 465 470 475 480  
 Pro Glu Asp Glu Thr Lys Pro Tyr Ile His Trp Cys Phe Lys Asp Arg  
 485 490 495  
 Asn Tyr Ala Asn Ile Ser Pro Lys Ile Lys Thr Glu Thr Glu Tyr Leu  
 500 505 510  
 Ile Phe Ser Gly Leu Ser Lys Ala Leu Asp Val Gly Thr Pro Phe Lys  
 515 520 525  
 Asn Lys Gln  
 530

<210> 2549  
 <211> 492  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2549  
 atgttttggc aactgaccgt tgtttcagta accgccgtca ttgcactggg gacaatattc 60  
 atcaataaga aaacttcaaa gcaaaaggcg acattagatg ttattttgaa tgattaccaa 120  
 gatgcacaat ttgtagaagc cgacaatcat atttcgcctt atattcgcgg cacggcagtt 180  
 gacgacaaca acgcgcggat cgacctgtat gaaatttatc aaaataaggc cggacaatgg 240  
 gaaaaagaga gagggcattt acttaccgta atcaatcggc acgagtttta tgcgtgcgca 300  
 atcaactcgg gagtattgga tgaggatttg tttaaacggc tgcattgcac caacttcata 360  
 aaattgtgga atgcagtttc gcctcttggt atgaaaatac gcgaagaaga acgcaaagac 420  
 acaatattta gagagttgga aattttgggt gcattatgga aagcaaacc cctaaaggca 480  
 tctgatttga ga 492

<210> 2550  
 <211> 163  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2550  
 Met Phe Trp Gln Leu Thr Val Val Ser Val Thr Ala Val Ile Ala Leu  
 1 5 10 15

Gly Thr Ile Phe Ile Asn Lys Lys Thr Ser Lys Gln Lys Ala Thr Leu  
                   20                                  25                                  30  
 Asp Val Ile Leu Asn Asp Tyr Gln Asp Ala Gln Phe Val Glu Ala Asp  
                   35                                  40                                  45  
 Asn His Ile Ser Pro Tyr Ile Arg Gly Thr Ala Val Asp Asp Asn Asn  
                   50                                  55                                  60  
 Ala Arg Ile Asp Leu Tyr Glu Ile Tyr Gln Asn Lys Gly Gly Gln Trp  
                   65                                  70                                  75                                  80  
 Glu Lys Glu Arg Gly His Leu Leu Thr Val Ile Asn Arg His Glu Phe  
                                   85                                  90                                  95  
 Tyr Ala Cys Ala Ile Asn Ser Gly Val Leu Asp Glu Asp Leu Phe Lys  
                                   100                                  105                                  110  
 Arg Leu His Cys Thr Asn Phe Ile Lys Leu Trp Asn Ala Val Ser Pro  
                                   115                                  120                                  125  
 Leu Val Met Lys Ile Arg Glu Glu Glu Arg Lys Asp Thr Ile Phe Arg  
                   130                                  135                                  140  
 Glu Leu Glu Ile Leu Val Ala Leu Trp Lys Ala Asn Pro Leu Lys Ala  
                   145                                  150                                  155                                  160  
 Ser Asp Leu

<210> 2551  
 <211> 1041  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 2551  
 atgtccgaaa acaaacaaaa cgaagtcctg accggttacg aacagctgaa acggcgcaac 60  
 cgccgcgcgc tcgtaacggc aagctccctg gttgccgcct cctgcatcct gctggcagcc 120  
 gcaactcagtt ccgatacctgc cgacagcaat cccgcaccgc aggcggcgga aaccggcgca 180  
 acggaaaagcc aaacggcaaaa cacggcacaa acccctgcct tgaaatccgc cgccgaaaaac 240  
 ggggaaaaccg ccgccgacaa accgcaggac ttggcaggcg aagacaagcc ttctgccgcc 300  
 gacagcgaaa tcagcgagcc tgaaaacgta ggcgcgccgc tgggtgctgat taacgaccgg 360  
 ctcgaagaca gcaacatcaa aggtttggaa gaatccgaga aactgcaaca ggcagaaacc 420  
 gccaaaaccg aaccgaagca ggcaaaacaa cgcgctgccg aaaaagtgtc ggcaactgcc 480  
 gacagtacgg atacggtagc ggttgaaaaa ccgaaacgca ctgccgaacc caaacgcgaa 540  
 aaagcgggaac gcaactgccga agccaagccc aaagccaaag aaacccaaaac cgccgaaaaa 600  
 gttgccgaca aaccgaaaaa tgctgccgaa aaaacccaaac cggatacggc aaaatccgac 660  
 agcgcggtaa aagaagcgaa aaaagccgac aaggctgaag gcaaaaagac agccgaaaaa 720  
 gaccgttcgg acggcaaaaa acacgaaacg gcgcaaaaaa ccgacaaagc ggacaaaacc 780  
 aaaaccgcgc agaaggaaaa atccggcaag gcgggcaaaa aagccgccat tcaggcaggt 840  
 tatgccgaaa aagaacgcgc cttgagcctc cagcgcaaaa tgaaggcggc gggtatcgat 900  
 tcgaccatca ccgaaatcat gaccgacaac ggcaaagttt accgcgtcaa atcaagcaac 960  
 tataaaaacg caagggatgc cgaacgcgat ttgaacaaac tgcgcgtgca cggcatcgcc 1020  
 ggccaggtaa cgaatgaata g 1041



<210> 2552

<211> 346

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2552

Met Ser Glu Asn Lys Gln Asn Glu Val Leu Thr Gly Tyr Glu Gln Leu  
1 5 10 15

Lys Arg Arg Asn Arg Arg Arg Leu Val Thr Ala Ser Ser Leu Val Ala  
20 25 30

Ala Ser Cys Ile Leu Leu Ala Ala Ala Leu Ser Ser Asp Pro Ala Asp  
35 40 45

Ser Asn Pro Ala Pro Gln Ala Gly Glu Thr Gly Ala Thr Glu Ser Gln  
50 55 60

Thr Ala Asn Thr Ala Gln Thr Pro Ala Leu Lys Ser Ala Ala Glu Asn  
65 70 75 80

Gly Glu Thr Ala Ala Asp Lys Pro Gln Asp Leu Ala Gly Glu Asp Lys  
85 90 95

Pro Ser Ala Ala Asp Ser Glu Ile Ser Glu Pro Glu Asn Val Gly Ala  
100 105 110

Pro Leu Val Leu Ile Asn Asp Arg Leu Glu Asp Ser Asn Ile Lys Gly  
115 120 125

Leu Glu Glu Ser Glu Lys Leu Gln Gln Ala Glu Thr Ala Lys Thr Glu  
130 135 140

Pro Lys Gln Ala Lys Gln Arg Ala Ala Glu Lys Val Ser Ala Thr Ala  
145 150 155 160

Asp Ser Thr Asp Thr Val Ala Val Glu Lys Pro Lys Arg Thr Ala Glu  
165 170 175

Pro Lys Pro Gln Lys Ala Glu Arg Thr Ala Glu Ala Lys Pro Lys Ala  
180 185 190

Lys Glu Thr Lys Thr Ala Glu Lys Val Ala Asp Lys Pro Lys Thr Ala  
195 200 205

Ala Glu Lys Thr Lys Pro Asp Thr Ala Lys Ser Asp Ser Ala Val Lys  
210 215 220

Glu Ala Lys Lys Ala Asp Lys Ala Glu Gly Lys Lys Thr Ala Glu Lys  
225 230 235 240

Asp Arg Ser Asp Gly Lys Lys His Glu Thr Ala Gln Lys Thr Asp Lys  
245 250 255

Ala Asp Lys Thr Lys Thr Ala Glu Lys Glu Lys Ser Gly Lys Ala Gly  
260 265 270

Lys Lys Ala Ala Ile Gln Ala Gly Tyr Ala Glu Lys Glu Arg Ala Leu

275

280

285

Ser Leu Gln Arg Lys Met Lys Ala Ala Gly Ile Asp Ser Thr Ile Thr  
290 295 300

Glu Ile Met Thr Asp Asn Gly Lys Val Tyr Arg Val Lys Ser Ser Asn  
305 310 315 320

Tyr Lys Asn Ala Arg Asp Ala Glu Arg Asp Leu Asn Lys Leu Arg Val  
325 330 335

His Gly Ile Ala Gly Gln Val Thr Asn Glu  
340 345

<210> 2553

<211> 999

<212> DNA

<213> Neisseria meningitidis

<400> 2553

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atgtccgaaa acaaacaaaa cgaagtcctg agcgggttacg aacaactcaa acggcgcaac 60
cgccgccgcc tcgtaacggc aagttgcctg gttgccgcct cctgcatcct gctggcagcc 120
gccctcagtt ccggccctgc cgaacagact gccggcgaaa caagcggcgt agaaaacaaa 180
gcggcaggtg cggcacaaac ccctgccttg aaatccgccg ccgacaaacc gcaggacttg 240
gcaggcgaag acaagccttc tgccgccgac agcgaaatca gcgagcctga aaacgtaggc 300
gcgccgctgg tgctgattaa cgagcgcctc gaagacagca acatcaaagg tttggaagca 360
tccgagaaac tgcaacaggc agaaaaccgcc aaaaccgcac cgaagcaggc aaaacaacgc 420
gctgccgaaa aagtgccggc aactgccgac agtacggata cggtagcggg tgaaaaaccg 480
aaacgcactg ccgaaacaaa accgcaaaaaa gcggaacgca ctgccaaagc caagcccaaa 540
gccaaagaaa ccaaaaaccgc cgaaaaaagt gccgacaaac cgaaaactgc cgccgaaaaa 600
accaaaccgg atacggcaaa atccgacagc gcggtaaaaa aagcgaaaaa agccgacaag 660
gctgaaaagc aaaaaacagc cgaaaaaagc cgttcggacg gcaaaaaaca cgaaacggca 720
caaaaaaccg acaaagcgga caagaccaaa accgccgaga aggaaaaaat cggtaaaaaa 780
gccgccattc aggcaggtta tgccgaaaaa gaacgcgcct taagcctcca gcgcaaaatg 840
aaggcggcgg gtatcgattc gaccatcacc gaaattatga ccgacaacgg caaagtttac 900
cgcgtcaaat caagcaacta taaaaacgca agggatgccg aacgcgattt gaacaaattg 960
cgcgtacacg gtatcgccgg tcaggtaacg aatgaatag 999
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<210> 2554

<211> 332

<212> PRT

<213> Neisseria meningitidis

<400> 2554

Met Ser Glu Asn Lys Gln Asn Glu Val Leu Ser Gly Tyr Glu Gln Leu  
1 5 10 15

Lys Arg Arg Asn Arg Arg Arg Leu Val Thr Ala Ser Cys Leu Val Ala  
20 25 30

Ala Ser Cys Ile Leu Leu Ala Ala Ala Leu Ser Ser Gly Pro Ala Glu  
35 40 45

Gln Thr Ala Gly Glu Thr Ser Gly Val Glu Asn Lys Ala Ala Gly Ala  
 50 55 60  
 Ala Gln Thr Pro Ala Leu Lys Ser Ala Ala Asp Lys Pro Gln Asp Leu  
 65 70 75 80  
 Ala Gly Glu Asp Lys Pro Ser Ala Ala Asp Ser Glu Ile Ser Glu Pro  
 85 90 95  
 Glu Asn Val Gly Ala Pro Leu Val Leu Ile Asn Glu Arg Leu Glu Asp  
 100 105 110  
 Ser Asn Ile Lys Gly Leu Glu Ala Ser Glu Lys Leu Gln Gln Ala Glu  
 115 120 125  
 Thr Ala Lys Thr Ala Pro Lys Gln Ala Lys Gln Arg Ala Ala Glu Lys  
 130 135 140  
 Val Pro Ala Thr Ala Asp Ser Thr Asp Thr Val Ala Val Glu Lys Pro  
 145 150 155 160  
 Lys Arg Thr Ala Glu Thr Lys Pro Gln Lys Ala Glu Arg Thr Ala Lys  
 165 170 175  
 Ala Lys Pro Lys Ala Lys Glu Thr Lys Thr Ala Glu Lys Val Ala Asp  
 180 185 190  
 Lys Pro Lys Thr Ala Ala Glu Lys Thr Lys Pro Asp Thr Ala Lys Ser  
 195 200 205  
 Asp Ser Ala Val Lys Glu Ala Lys Lys Ala Asp Lys Ala Glu Ser Lys  
 210 215 220  
 Lys Thr Ala Glu Lys Asp Arg Ser Asp Gly Lys Lys His Glu Thr Ala  
 225 230 235 240  
 Gln Lys Thr Asp Lys Ala Asp Lys Thr Lys Thr Ala Glu Lys Glu Lys  
 245 250 255  
 Ser Gly Lys Lys Ala Ala Ile Gln Ala Gly Tyr Ala Glu Lys Glu Arg  
 260 265 270  
 Ala Leu Ser Leu Gln Arg Lys Met Lys Ala Ala Gly Ile Asp Ser Thr  
 275 280 285  
 Ile Thr Glu Ile Met Thr Asp Asn Gly Lys Val Tyr Arg Val Lys Ser  
 290 295 300  
 Ser Asn Tyr Lys Asn Ala Arg Asp Ala Glu Arg Asp Leu Asn Lys Leu  
 305 310 315 320  
 Arg Val His Gly Ile Ala Gly Gln Val Thr Asn Glu  
 325 330

<210> 2555

<211> 999  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 2555  
 atgtccgaaa acaaacaaaa cgaagtcctg agcgggttacg aacaactcaa acggcgcaac 60  
 cgccgcccgc tcgtaacggc aagttgcctg gttgccgcct cctgcatcct gctggcagcc 120  
 gccctcagtt ccggccctgc cgaacagact gccggcgaaa caagcggcgt agaaaacaaa 180  
 gcggcagggtg cggcacaaaac ccctgccttg aaatccgccg ccgacaaaacc gcaggacttg 240  
 gcaggcgaag acaagccttc tgccgccgac agcgaaatca gcgagcctga aaacgtaggc 300  
 gcgccgctgg tgctgattaa cgaccgcctc gaagacagca acatcaaagg tttggaagca 360  
 tccgagaaaac tgcaacaggc agaaaccgcc aaaaccgcac cgaagcaggc aaaacaacgc 420  
 gctgccgaaa aagtgccggc aactgccgac agtacggata cggtagcggg tgaaaaaccg 480  
 aaacgcactg ccgaaacaaa accgcaaaaa gcggaacgca ctgccaaagc caagcccaaa 540  
 gccaaagaaa ccaaaaccgc cgaaaaagtt gccgacaaac cgaaaactgc cgccgaaaaa 600  
 accaaaccgg atacggcaaa atccgacagc gcggtaaaag aagcgaaaaa agccgacaag 660  
 gctgaaagca aaaaaacagc cgaaaaagac cgttcggacg gcaaaaaaca cgaaacggca 720  
 caaaaaaccg acaaagcgga caagaccaa accgccgaga aggaaaaatc cggtaaaaaa 780  
 gccgccattc aggcagggtta tgccgaaaaa gaacgcgcct taagcctcca gcgcaaaatg 840  
 aaggcggcgg gtatcgattc gaccatcacc gaaattatga ccgacaacgg caaagttttac 900  
 cgcgtaaat caagcaacta taaaaacgca agggatgccg aacgcgattt gaacaaattg 960  
 cgcgtaacag gtatcgccgg tcaggtaacg aatgaataa 999

<210> 2556  
 <211> 332  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 2556  
 Met Ser Glu Asn Lys Gln Asn Glu Val Leu Ser Gly Tyr Glu Gln Leu  
 1 5 10 15  
 Lys Arg Arg Asn Arg Arg Arg Leu Val Thr Ala Ser Cys Leu Val Ala  
 20 25 30  
 Ala Ser Cys Ile Leu Leu Ala Ala Ala Leu Ser Ser Gly Pro Ala Glu  
 35 40 45  
 Gln Thr Ala Gly Glu Thr Ser Gly Val Glu Asn Lys Ala Ala Gly Ala  
 50 55 60  
 Ala Gln Thr Pro Ala Leu Lys Ser Ala Ala Asp Lys Pro Gln Asp Leu  
 65 70 75 80  
 Ala Gly Glu Asp Lys Pro Ser Ala Ala Asp Ser Glu Ile Ser Glu Pro  
 85 90 95  
 Glu Asn Val Gly Ala Pro Leu Val Leu Ile Asn Asp Arg Leu Glu Asp  
 100 105 110  
 Ser Asn Ile Lys Gly Leu Glu Ala Ser Glu Lys Leu Gln Gln Ala Glu  
 115 120 125  
 Thr Ala Lys Thr Ala Pro Lys Gln Ala Lys Gln Arg Ala Ala Glu Lys  
 130 135 140

Val Pro Ala Thr Ala Asp Ser Thr Asp Thr Val Ala Val Glu Lys Pro  
 145 150 155 160  
 Lys Arg Thr Ala Glu Thr Lys Pro Gln Lys Ala Glu Arg Thr Ala Lys  
 165 170 175  
 Ala Lys Pro Lys Ala Lys Glu Thr Lys Thr Ala Glu Lys Val Ala Asp  
 180 185 190  
 Lys Pro Lys Thr Ala Ala Glu Lys Thr Lys Pro Asp Thr Ala Lys Ser  
 195 200 205  
 Asp Ser Ala Val Lys Glu Ala Lys Lys Ala Asp Lys Ala Glu Ser Lys  
 210 215 220  
 Lys Thr Ala Glu Lys Asp Arg Ser Asp Gly Lys Lys His Glu Thr Ala  
 225 230 235 240  
 Gln Lys Thr Asp Lys Ala Asp Lys Thr Lys Thr Ala Glu Lys Glu Lys  
 245 250 255  
 Ser Gly Lys Lys Ala Ala Ile Gln Ala Gly Tyr Ala Glu Lys Glu Arg  
 260 265 270  
 Ala Leu Ser Leu Gln Arg Lys Met Lys Ala Ala Gly Ile Asp Ser Thr  
 275 280 285  
 Ile Thr Glu Ile Met Thr Asp Asn Gly Lys Val Tyr Arg Val Lys Ser  
 290 295 300  
 Ser Asn Tyr Lys Asn Ala Arg Asp Ala Glu Arg Asp Leu Asn Lys Leu  
 305 310 315 320  
 Arg Val His Gly Ile Ala Gly Gln Val Thr Asn Glu  
 325 330

<210> 2557  
 <211> 309  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 2557  
 ctgacccctt gggcggatgc atatgcagat ttgcgcggca aaaccaaagt gatgacgacc 60  
 cagatgggtg cttcccgca tgcagcaaa agcgccaaag gttggagtgt cggtatcggg 120  
 ctgaatgtag gcaaacagtt gaccgacagc gtcggtctcg agtttgatcc atactaccgt 180  
 cacaaaacaa tctacaaacc ccgtgagatt gtcttggacg gtgacaaaac caaatgggc 240  
 cgctccaaat ccaacgagta cggcttccgc gtacccgcaa cgttctatag tcaattaaaa 300  
 tcaaaatag 309

<210> 2558  
 <211> 102  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 2558

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Leu Thr Pro Trp Ala Asp Ala Tyr Ala Asp Leu Arg Gly Lys Thr Lys
 1             5             10             15
Val Met Thr Thr Gln Met Gly Ala Ser Arg Asp Val Ser Lys Ser Ala
          20             25             30
Lys Gly Trp Ser Val Gly Ile Gly Leu Asn Val Gly Lys Gln Leu Thr
          35             40             45
Asp Ser Val Gly Leu Glu Phe Asp Pro Tyr Tyr Arg His Lys Thr Ile
          50             55             60
Tyr Lys Pro Arg Glu Ile Val Leu Asp Gly Asp Lys Thr Lys Met Gly
          65             70             75             80
Arg Ser Lys Ser Asn Glu Tyr Gly Phe Arg Val Ala Ala Thr Phe Tyr
          85             90             95
Ser Gln Leu Lys Ser Lys
          100
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<210> 2559

<211> 309

<212> DNA

<213> Neisseria meningitidis

<400> 2559

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ctaaccctt gggcggatgc atatgcagat ttgcgcggca aaaccaaagt gatgacgacc 60
cagatgtgtg cttcccgcga tgtcagcaaa agcgccaaag gttggagtgt cggtatcggc 120
ctgaatgtag gcaaacagtt gaccgacagc gtcggtctcg agtttgatcc atactaccgt 180
cacaaaacaa tctgcaaacc ccgtgagatt gttttggacg gcgacaaaac caaatgggc 240
cgctccaaat ccaacgagta cggcttccgc gtaaccgcaa cgttctatag tcaattaaaa 300
tcaaagtag                                     309
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<210> 2560

<211> 102

<212> PRT

<213> Neisseria meningitidis

<400> 2560

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Leu Thr Pro Trp Ala Asp Ala Tyr Ala Asp Leu Arg Gly Lys Thr Lys
 1             5             10             15
Val Met Thr Thr Gln Met Cys Ala Ser Arg Asp Val Ser Lys Ser Ala
          20             25             30
Lys Gly Trp Ser Val Gly Ile Gly Leu Asn Val Gly Lys Gln Leu Thr
          35             40             45
Asp Ser Val Gly Leu Glu Phe Asp Pro Tyr Tyr Arg His Lys Thr Ile
          50             55             60
Cys Lys Pro Arg Glu Ile Val Leu Asp Gly Asp Lys Thr Lys Met Gly
          65             70             75             80
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Arg Ser Lys Ser Asn Glu Tyr Gly Phe Arg Val Thr Ala Thr Phe Tyr  
85 90 95

Ser Gln Leu Lys Ser Lys  
100

<210> 2561  
<211> 1266  
<212> DNA  
<213> Neisseria gonorrhoeae

<400> 2561  
atgagtcaaa accaaccgac acaaccgacc aaacgcaatc tggtcaaaac cgcccttgcc 60  
gtcggcgcaa tcggcgcaat cggaggttat ttcggcgcca aaaaacaggc cgaaaccgcc 120  
gaacgcaccg ccgaaagcca aactcgccc caagcctatc cctgctacgg cgaacatcag 180  
gcaggtatcg ttacgccgcg gcaggcggtt tccattatgt gcgccttcga cgtaaccgcg 240  
caaagtgccg agcagctgga aaacctgttc cgcacactga ccgcccgcac cgagttttctc 300  
acccaaggcg gagaatacca agacggcgac gacaaactcc cgtcagccgg cagcggcatt 360  
ttgggtaaag ctttcaaccc cgacggattg accgttaccg tgggggtggg cagcagcctg 420  
tttgacggcc gggtcggact caaagacaaa aaaacgggtt atttgcagga aatgcgcgac 480  
ttccccaacg ataagctgca aaaaagctgg tgcgacggcg atttgagcct gcaaactctgc 540  
gccttcaccc ccgaaacctg ccaaaccgcc ctgcgcgaca tcatcaaaca caccgcccac 600  
accgccgtca tccgctggag tatcgacggg tggcagccta aatccgaacc cggcgcgatg 660  
gcggcgcgca acctgttggg cttccgagac ggcacgggca accccaaggc ttccgatccc 720  
aaaaccgccg acgaggtttt atggacgggc gtggccgcca acagcctcga cgaaccggag 780  
tgggcgaaaa acggcagcta tcaggcagtc cgccttatcc gccgctttgt cgagttttgg 840  
gacaggacgc cgcttcaaga gcaaaccgac attttcgggc ggcgaaaata cagcggggcg 900  
ccgatggacg gcaaaaaaga agccgaccaa ccgatttcg ccaaagaccc cgaggggtgat 960  
atcacgccc aagacagcca tatgcgcctg gcgaatccgc gcgatcccg attcctcaaa 1020  
aaacactgcc tcttccgcgc cgctacagc tattctcgcg gacccgcctc aagcggacag 1080  
cttgatgtcg ggctggtgtt cgtctgctat caggcaaata ttgccgacgg tttcatcttc 1140  
gtgcaaaaac tcctcaacgc cgaaccgctg gaagaatata tcagcccctt cggcggcggc 1200  
tatttcttcg tcttgcccgc cgtgggaaaa ggcggattct tgggacaagg gctgccgggc 1260  
gtataa 1266

<210> 2562  
<211> 421  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 2562  
Met Ser Gln Asn Gln Pro Ala Gln Pro Thr Lys Arg Asn Leu Phe Lys  
1 5 10 15  
Thr Ala Leu Ala Val Gly Ala Ile Gly Ala Ile Gly Gly Tyr Phe Gly  
20 25 30  
Gly Lys Lys Gln Gly Glu Thr Ala Glu Arg Thr Ala Glu Ser Gln His  
35 40 45  
Ser Pro Gln Ala Tyr Pro Cys Tyr Gly Glu His Gln Ala Gly Ile Val  
50 55 60  
Thr Pro Arg Gln Ala Phe Ser Ile Met Cys Ala Phe Asp Val Thr Ala

65	70	75	80
Gln Ser Ala Lys	Gln Leu Glu Asn Leu Phe Arg Thr Leu Thr Ala Arg		
	85	90	95
Ile Glu Phe Leu Thr Gln Gly Gly Glu Tyr Gln Asp Gly Asp Asp Lys			
	100	105	110
Leu Pro Ser Ala Gly Ser Gly Ile Leu Gly Lys Ala Phe Asn Pro Asp			
	115	120	125
Gly Leu Thr Val Thr Val Gly Val Gly Ser Ser Leu Phe Asp Gly Arg			
	130	135	140
Phe Gly Leu Lys Asp Lys Lys Thr Val His Leu Gln Glu Met Arg Asp			
	145	150	155
Phe Pro Asn Asp Lys Leu Gln Lys Ser Trp Cys Asp Gly Asp Leu Ser			
	165	170	175
Leu Gln Ile Cys Ala Phe Thr Pro Glu Thr Cys Gln Thr Ala Leu Arg			
	180	185	190
Asp Ile Ile Lys His Thr Ala Gln Thr Ala Val Ile Arg Trp Ser Ile			
	195	200	205
Asp Gly Trp Gln Pro Lys Ser Glu Pro Gly Ala Met Ala Ala Arg Asn			
	210	215	220
Leu Leu Gly Phe Arg Asp Gly Thr Gly Asn Pro Lys Val Ser Asp Pro			
	225	230	235
Lys Thr Ala Asp Glu Val Leu Trp Thr Gly Val Ala Ala Asn Ser Leu			
	245	250	255
Asp Glu Pro Glu Trp Ala Lys Asn Gly Ser Tyr Gln Ala Val Arg Leu			
	260	265	270
Ile Arg Arg Phe Val Glu Phe Trp Asp Arg Thr Pro Leu Gln Glu Gln			
	275	280	285
Thr Asp Ile Phe Gly Arg Arg Lys Tyr Ser Gly Ala Pro Met Asp Gly			
	290	295	300
Lys Lys Glu Ala Asp Gln Pro Asp Phe Ala Lys Asp Pro Glu Gly Asp			
	305	310	315
Ile Thr Pro Lys Asp Ser His Met Arg Leu Ala Asn Pro Arg Asp Pro			
	325	330	335
Glu Phe Leu Lys Lys His Cys Leu Phe Arg Arg Ala Tyr Ser Tyr Ser			
	340	345	350
Arg Gly Pro Ala Ser Ser Gly Gln Leu Asp Val Gly Leu Val Phe Val			
	355	360	365
Cys Tyr Gln Ala Asn Leu Ala Asp Gly Phe Ile Phe Val Gln Asn Leu			



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<400> 2564
Met Ser Lys Lys Gln Pro Ala Gln Pro Thr Arg Arg Thr Leu Phe Lys
  1             5             10             15

Thr Ala Ile Ala Ala Gly Ala Val Gly Ala Ile Gly Gly Tyr Leu Gly
      20             25             30

Gly Lys Lys Gln Gly Glu Thr Ala Glu Arg Thr Ala Glu Ser Gln His
      35             40             45

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Ser Pro Gln Ala Tyr Pro Cys Tyr Gly Glu His Gln Ala Gly Ile Val  
 50 55 60  
 Thr Pro Gln Gln Ala Phe Ser Ile Met Cys Ala Phe Asp Val Thr Ala  
 65 70 75 80  
 Gln Ser Ala Lys Gln Leu Glu Asn Leu Phe Arg Thr Leu Thr Ala Arg  
 85 90 95  
 Ile Glu Phe Leu Thr Gln Gly Gly Glu Tyr Gln Asp Gly Asp Asp Lys  
 100 105 110  
 Leu Pro Pro Ala Gly Ser Gly Ile Leu Gly Lys Ala Phe Asn Pro Asp  
 115 120 125  
 Gly Leu Thr Val Thr Val Gly Val Gly Ser Ser Leu Phe Asp Gly Arg  
 130 135 140  
 Phe Gly Leu Lys Asp Lys Lys Pro Ile His Leu Gln Glu Met Arg Asp  
 145 150 155 160  
 Phe Ser Asn Asp Lys Leu Gln Lys Ser Trp Cys Asp Gly Asp Leu Ser  
 165 170 175  
 Leu Gln Ile Cys Ala Phe Thr Pro Glu Thr Cys Gln Ala Ala Leu Arg  
 180 185 190  
 Asp Ile Ile Lys His Thr Val Gln Thr Ala Val Ile Arg Trp Ser Ile  
 195 200 205  
 Asp Gly Trp Gln Pro Lys Ser Glu Pro Gly Ala Met Ala Ala Arg Asn  
 210 215 220  
 Leu Leu Gly Phe Arg Asp Gly Thr Gly Asn Pro Lys Val Ser Asp Pro  
 225 230 235 240  
 Lys Thr Ala Asp Glu Val Leu Trp Thr Gly Val Ala Ala Asn Ser Leu  
 245 250 255  
 Asp Glu Pro Glu Trp Ala Lys Asn Gly Ser Tyr Gln Ala Val Arg Leu  
 260 265 270  
 Ile Arg His Phe Val Glu Phe Trp Asp Arg Thr Pro Leu Gln Glu Gln  
 275 280 285  
 Thr Asp Ile Phe Gly Arg Arg Lys Tyr Ser Gly Ala Pro Met Asp Gly  
 290 295 300  
 Lys Lys Glu Ala Asp Gln Pro Asp Phe Ala Lys Asp Pro Glu Gly Asp  
 305 310 315 320  
 Ile Thr Pro Lys Asp Ser His Ile Arg Leu Ala Asn Pro Arg Asp Pro  
 325 330 335  
 Glu Phe Leu Lys Lys His Arg Leu Phe Arg Arg Ala Tyr Ser Tyr Ser  
 340 345 350

Arg Gly Leu Ala Ser Ser Gly Gln Leu Asp Val Gly Leu Val Phe Val  
355 360 365

Cys Tyr Gln Ala Asn Leu Ala Asp Gly Phe Ile Phe Val Gln Asn Leu  
370 375 380

Leu Asn Gly Glu Pro Leu Glu Glu Tyr Ile Ser Pro Phe Gly Gly Gly  
385 390 395 400

Tyr Phe Phe Val Leu Pro Gly Val Glu Lys Gly Gly Phe Leu Gly Gln  
405 410 415

Gly Leu Leu Gly Val  
420

<210> 2565  
<211> 1266  
<212> DNA  
<213> Neisseria meningitidis

<400> 2565  
atgagcaaaa accaaccgcg acaaccgacc aggcgcactc tttttaaaac cgcgatcgca 60  
gctggagcag tcggcgcaat cggaggttat ctgcggcgca aaaaacgggg cgaaaccgcc 120  
gaacgcaccg ccgaaagcca aactcgccc caagcctatc cctgctacgg cgaacatcag 180  
gcaggcatcg ttacgccgca gcaggcgttt tcgattatgt gcgccttcga cgtaaccgcg 240  
caaagtgcc aagcagctga aaacctgttc cgcacgctga ccgcccgcat cgagtttctc 300  
acccaaggcg gcgaatacca agacggcgac gacaaacttc cgccagccgg cagcggcatt 360  
ttgggcaaag ccttcaacc cgcgggttg accgttaccg tgggggtggg cagcagcctg 420  
tttgacggcc ggctcggact caaagacaaa aaaccgattc atttgagga aatgcgcgac 480  
ttctccaacg ataagctgca aaaaagctgg tgcgacggcg atttgagcct gcaaactctgt 540  
gccttcaccc ccgaaacctg ccaagccgcc ctgcgcgaca tcatcaaaca caccgtccaa 600  
accgcccgtta tccgctggag tatcgacggg tggcagccta aatccgaacc cggcgcgatg 660  
gcggcgcgca acctgttggg cttccgcgac ggcacgggca accccaaagt ttccgacccc 720  
aaaactgccg acgaggtttt gtggacgggg gtggccgcca acagcctcga cgaaccggag 780  
tgggcgaaaa acggcagcta tcaggcagtc cgccttatcc gccactttgt tgagttttgg 840  
gacaggacgc cgcttcaaga gcaaaccgac attttcgggc ggcgcaaata cagcggcgcg 900  
ccgatggacg gcaaaaaaga agccgaccaa ccggattttg ccaaagaccc cgaggggaat 960  
accacgccc aagacagcca tatacgctg gcgaatccgc gcgatcccga gttccttaaa 1020  
aaacaccgcc tcttcgcgg cgcctacagc tattcgcgcg gactcgctc aagcggacag 1080  
cttgatgtcg ggctggtgtt cgtctgctat caggcaaacc ttgcccagcg attcatcttc 1140  
gtgcaaaacc tcctcaacgg cgaaccgctg gaagaatata tcagcccctt cggcggcggg 1200  
tatttcttcg tcttgcccgg cgtggaaaaa ggcggtttt tggggcaagg gctgctgggc 1260  
gtataa 1266

<210> 2566  
<211> 421  
<212> PRT  
<213> Neisseria meningitidis

<400> 2566  
Met Ser Lys Asn Gln Pro Ala Gln Pro Thr Arg Arg Thr Leu Phe Lys  
1 5 10 15

Thr Ala Ile Ala Ala Gly Ala Val Gly Ala Ile Gly Gly Tyr Leu Gly

20					25					30					
Gly	Lys	Lys	Arg	Gly	Glu	Thr	Ala	Glu	Arg	Thr	Ala	Glu	Ser	Gln	His
		35					40					45			
Ser	Pro	Gln	Ala	Tyr	Pro	Cys	Tyr	Gly	Glu	His	Gln	Ala	Gly	Ile	Val
	50					55					60				
Thr	Pro	Gln	Gln	Ala	Phe	Ser	Ile	Met	Cys	Ala	Phe	Asp	Val	Thr	Ala
	65					70					75				80
Gln	Ser	Ala	Lys	Gln	Leu	Glu	Asn	Leu	Phe	Arg	Thr	Leu	Thr	Ala	Arg
			85						90					95	
Ile	Glu	Phe	Leu	Thr	Gln	Gly	Gly	Glu	Tyr	Gln	Asp	Gly	Asp	Asp	Lys
			100					105					110		
Leu	Pro	Pro	Ala	Gly	Ser	Gly	Ile	Leu	Gly	Lys	Ala	Phe	Asn	Pro	Asp
		115					120					125			
Gly	Leu	Thr	Val	Thr	Val	Gly	Val	Gly	Ser	Ser	Leu	Phe	Asp	Gly	Arg
	130					135					140				
Phe	Gly	Leu	Lys	Asp	Lys	Lys	Pro	Ile	His	Leu	Gln	Glu	Met	Arg	Asp
	145					150					155				160
Phe	Ser	Asn	Asp	Lys	Leu	Gln	Lys	Ser	Trp	Cys	Asp	Gly	Asp	Leu	Ser
			165						170					175	
Leu	Gln	Ile	Cys	Ala	Phe	Thr	Pro	Glu	Thr	Cys	Gln	Ala	Ala	Leu	Arg
		180						185					190		
Asp	Ile	Ile	Lys	His	Thr	Val	Gln	Thr	Ala	Val	Ile	Arg	Trp	Ser	Ile
	195						200					205			
Asp	Gly	Trp	Gln	Pro	Lys	Ser	Glu	Pro	Gly	Ala	Met	Ala	Ala	Arg	Asn
	210					215					220				
Leu	Leu	Gly	Phe	Arg	Asp	Gly	Thr	Gly	Asn	Pro	Lys	Val	Ser	Asp	Pro
	225					230					235				240
Lys	Thr	Ala	Asp	Glu	Val	Leu	Trp	Thr	Gly	Val	Ala	Ala	Asn	Ser	Leu
			245						250					255	
Asp	Glu	Pro	Glu	Trp	Ala	Lys	Asn	Gly	Ser	Tyr	Gln	Ala	Val	Arg	Leu
		260						265					270		
Ile	Arg	His	Phe	Val	Glu	Phe	Trp	Asp	Arg	Thr	Pro	Leu	Gln	Glu	Gln
	275						280					285			
Thr	Asp	Ile	Phe	Gly	Arg	Arg	Lys	Tyr	Ser	Gly	Ala	Pro	Met	Asp	Gly
	290					295					300				
Lys	Lys	Glu	Ala	Asp	Gln	Pro	Asp	Phe	Ala	Lys	Asp	Pro	Glu	Gly	Asn
	305					310					315				320
Thr	Thr	Pro	Lys	Asp	Ser	His	Ile	Arg	Leu	Ala	Asn	Pro	Arg	Asp	Pro

325

330

335

Glu Phe Leu Lys Lys His Arg Leu Phe Arg Arg Ala Tyr Ser Tyr Ser  
 340 345 350

Arg Gly Leu Ala Ser Ser Gly Gln Leu Asp Val Gly Leu Val Phe Val  
 355 360 365

Cys Tyr Gln Ala Asn Leu Ala Asp Gly Phe Ile Phe Val Gln Asn Leu  
 370 375 380

Leu Asn Gly Glu Pro Leu Glu Glu Tyr Ile Ser Pro Phe Gly Gly Gly  
 385 390 395 400

Tyr Phe Phe Val Leu Pro Gly Val Glu Lys Gly Gly Phe Leu Gly Gln  
 405 410 415

Gly Leu Leu Gly Val  
 420

&lt;210&gt; 2567

&lt;211&gt; 1167

&lt;212&gt; DNA

&lt;213&gt; Neisseria gonorrhoeae

&lt;400&gt; 2567

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 cagccgccgg aggcggagaa agccgcgccg gccgcgtccg gtgagaccca atccgccaac 120  
 gaaggcgggt cggtcgggtat cgccgtcaac gacaatgcct gcgaaccgat gaatctgacc 180  
 gtgccgagcg gacaggttgt gttcaatatt aaaaacaaca gcggccgcaa gctcgaatgg 240  
 gaaatcctga agggcgtgat ggtggtggac gaacgcgaaa atatcgcccc ggggctttcc 300  
 gacaaaatga ccgtaaccct gctgccgggc gaatacgaaa tgacctgcgg ccttttgacc 360  
 aatccgcgcg gcaagctggt ggtagccgac agcggcttta aagacaccgc caacgaagcg 420  
 gatttgaaa aactgcccc accgctcgcc gactataaag cctacgttca aggcgaggtt 480  
 aaagagctgg cggcgaaaac caaaaccttt accgaagccg tcaaagcagg cgacattgaa 540  
 aaggcgaaat ccctgtttgc cgccaccgcg gtccattacg aacgcacgca accgattgcc 600  
 gagcttttca gcgaactcga ccccgtcacg gatgcgtgtg aagacgactt caaagacggt 660  
 gcgaaagatg ccgggtttac cggcttccac cgtatcgaac acgccctttg ggtggaaaaa 720  
 gacgtatccg gcgtgaagga aaccgcggcc aaactgatga ccgatgtcga agccctgcaa 780  
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 aacgaaattc tggcgaaata ccgcaccaa gacggttttg aaacctacga caagctgagc 1080  
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&lt;210&gt; 2568

&lt;211&gt; 388

&lt;212&gt; PRT

&lt;213&gt; Neisseria gonorrhoeae

&lt;400&gt; 2568

Met Arg Lys Phe Asn Leu Thr Ala Leu Ser Val Met Leu Ala Leu Gly  
 1 5 10 15

Leu Thr Ala Cys Gln Pro Pro Glu Ala Glu Lys Ala Ala Pro Ala Ala  
 20 25 30  
 Ser Gly Glu Thr Gln Ser Ala Asn Glu Gly Gly Ser Val Gly Ile Ala  
 35 40 45  
 Val Asn Asp Asn Ala Cys Glu Pro Met Asn Leu Thr Val Pro Ser Gly  
 50 55 60  
 Gln Val Val Phe Asn Ile Lys Asn Asn Ser Gly Arg Lys Leu Glu Trp  
 65 70 75 80  
 Glu Ile Leu Lys Gly Val Met Val Val Asp Glu Arg Glu Asn Ile Ala  
 85 90 95  
 Pro Gly Leu Ser Asp Lys Met Thr Val Thr Leu Leu Pro Gly Glu Tyr  
 100 105 110  
 Glu Met Thr Cys Gly Leu Leu Thr Asn Pro Arg Gly Lys Leu Val Val  
 115 120 125  
 Ala Asp Ser Gly Phe Lys Asp Thr Ala Asn Glu Ala Asp Leu Glu Lys  
 130 135 140  
 Leu Pro Gln Pro Leu Ala Asp Tyr Lys Ala Tyr Val Gln Gly Glu Val  
 145 150 155 160  
 Lys Glu Leu Ala Ala Lys Thr Lys Thr Phe Thr Glu Ala Val Lys Ala  
 165 170 175  
 Gly Asp Ile Glu Lys Ala Lys Ser Leu Phe Ala Ala Thr Arg Val His  
 180 185 190  
 Tyr Glu Arg Ile Glu Pro Ile Ala Glu Leu Phe Ser Glu Leu Asp Pro  
 195 200 205  
 Val Ile Asp Ala Cys Glu Asp Asp Phe Lys Asp Gly Ala Lys Asp Ala  
 210 215 220  
 Gly Phe Thr Gly Phe His Arg Ile Glu His Ala Leu Trp Val Glu Lys  
 225 230 235 240  
 Asp Val Ser Gly Val Lys Glu Thr Ala Ala Lys Leu Met Thr Asp Val  
 245 250 255  
 Glu Ala Leu Gln Lys Glu Ile Asp Ala Leu Ala Phe Pro Pro Gly Lys  
 260 265 270  
 Val Val Gly Gly Ala Ser Glu Leu Ile Glu Glu Ala Ala Gly Ser Lys  
 275 280 285  
 Ile Ser Gly Glu Glu Asp Arg Tyr Ser His Thr Asp Leu Ser Asp Phe  
 290 295 300  
 Gln Ala Asn Ala Asp Gly Ser Lys Lys Ile Val Asp Leu Phe Arg Pro  
 305 310 315 320

Leu Ile Glu Ala Lys Asn Lys Ala Leu Leu Glu Lys Thr Asp Thr Asn  
325 330 335

Phe Lys Gln Val Asn Glu Ile Leu Ala Lys Tyr Arg Thr Lys Asp Gly  
340 345 350

Phe Glu Thr Tyr Asp Lys Leu Ser Glu Ala Asp Arg Lys Ala Leu Gln  
355 360 365

Ala Pro Ile Asn Ala Leu Ala Glu Asp Leu Ala Gln Leu Arg Gly Ile  
370 375 380

Leu Gly Leu Lys  
385

<210> 2569  
<211> 1167  
<212> DNA  
<213> Neisseria meningitidis

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gagggcggtt cggtcagtat cgcggtcaac gacaatgcct gcgaaccgat ggaactgacc 180  
gtgccgagcg gacaggttgt gttcaatatt aaaaacaaca gcggccgcaa gctcgaatgg 240  
gaaatcctga aaggcggtgat ggtggtggac gagcgcgaaa acatcgcccc cggactttcc 300  
gataaaatga ccgtcaccct gttgccgggc gaatacgaaa tgacttgccg tcttttgacc 360  
aatccgcgcg gcaagctggt ggtaaccgac agcggcttta aagacaccgc caacgaagcg 420  
gatttggaata aactgtccca accgctcgcc gactataaag cctacgttca aggcgaggtt 480  
aaagagctgg tggcgaaaaac caaaactttt accgaagccg tcaaagcagg cgacattgaa 540  
aaggcgaaat ccctgtttgc cgacacccgc gtccattacg aacgcacgca accgattgcc 600  
gagcttttca gcgaactcga ccccgtcacg gatgcgcgtg aagacgactt caaagacggc 660  
gcgaaagatg ccggtattac cggctttcac cgtatcgaat acgccccttg ggtggaaaaa 720  
gacgtgtccg gcgtgaagga aattgcagcg aaactgatga ccgatgtcga agccctgcaa 780  
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attgaagaag tggcgggcag taaaatcagc ggcaagaag accggtacag ccacaccgat 900  
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ctgatcgagg ccaaaaaaaa agccttggtg gaaaaaacccg ataccaactt caaacaggtc 1020  
aacgaaattc tggcgaaata ccggactaaa gacggttttg aaacctacga caagctgggc 1080  
gaagccgacc gcaaagcgtt acaggcctct attaacgcgc ttgccgaaga ccttgcccaa 1140  
cttcgcgga tactcggctt gaaataa 1167

<210> 2570  
<211> 388  
<212> PRT  
<213> Neisseria meningitidis

<400> 2570  
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Leu Thr Ala Cys Gln Pro Pro Glu Ala Glu Lys Ala Ala Pro Ala Ala  
20 25 30

Ser Gly Glu Ala Gln Thr Ala Asn Glu Gly Gly Ser Val Ser Ile Ala  
 35 40 45  
 Val Asn Asp Asn Ala Cys Glu Pro Met Glu Leu Thr Val Pro Ser Gly  
 50 55 60  
 Gln Val Val Phe Asn Ile Lys Asn Asn Ser Gly Arg Lys Leu Glu Trp  
 65 70 75 80  
 Glu Ile Leu Lys Gly Val Met Val Val Asp Glu Arg Glu Asn Ile Ala  
 85 90 95  
 Pro Gly Leu Ser Asp Lys Met Thr Val Thr Leu Leu Pro Gly Glu Tyr  
 100 105 110  
 Glu Met Thr Cys Gly Leu Leu Thr Asn Pro Arg Gly Lys Leu Val Val  
 115 120 125  
 Thr Asp Ser Gly Phe Lys Asp Thr Ala Asn Glu Ala Asp Leu Glu Lys  
 130 135 140  
 Leu Ser Gln Pro Leu Ala Asp Tyr Lys Ala Tyr Val Gln Gly Glu Val  
 145 150 155 160  
 Lys Glu Leu Val Ala Lys Thr Lys Thr Phe Thr Glu Ala Val Lys Ala  
 165 170 175  
 Gly Asp Ile Glu Lys Ala Lys Ser Leu Phe Ala Asp Thr Arg Val His  
 180 185 190  
 Tyr Glu Arg Ile Glu Pro Ile Ala Glu Leu Phe Ser Glu Leu Asp Pro  
 195 200 205  
 Val Ile Asp Ala Arg Glu Asp Asp Phe Lys Asp Gly Ala Lys Asp Ala  
 210 215 220  
 Gly Phe Thr Gly Phe His Arg Ile Glu Tyr Ala Leu Trp Val Glu Lys  
 225 230 235 240  
 Asp Val Ser Gly Val Lys Glu Ile Ala Ala Lys Leu Met Thr Asp Val  
 245 250 255  
 Glu Ala Leu Gln Lys Glu Ile Asp Ala Leu Ala Phe Pro Pro Gly Lys  
 260 265 270  
 Val Val Gly Gly Ala Ser Glu Leu Ile Glu Glu Val Ala Gly Ser Lys  
 275 280 285  
 Ile Ser Gly Glu Glu Asp Arg Tyr Ser His Thr Asp Leu Ser Asp Phe  
 290 295 300  
 Gln Ala Asn Val Asp Gly Ser Lys Lys Ile Val Asp Leu Phe Arg Pro  
 305 310 315 320  
 Leu Ile Glu Ala Lys Asn Lys Ala Leu Leu Glu Lys Thr Asp Thr Asn  
 325 330 335



Phe Lys Gln Val Asn Glu Ile Leu Ala Lys Tyr Arg Thr Lys Asp Gly  
 340 345 350

Phe Glu Thr Tyr Asp Lys Leu Gly Glu Ala Asp Arg Lys Ala Leu Gln  
 355 360 365

Ala Ser Ile Asn Ala Leu Ala Glu Asp Leu Ala Gln Leu Arg Gly Ile  
 370 375 380

Leu Gly Leu Lys  
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<210> 2571

<211> 1167

<212> DNA

<213> Neisseria meningitidis

<400> 2571

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gagggcgggt cggtcagtat cgccgtcaac gacaatgcct gcgaaccgat ggaactgacc 180
gtgccgagcg gacaggttgt gttcaatatt aaaaacaaca gcggccgcaa gtcgaatgg 240
gaaatcctga aaggcgtgat ggtggtggac gagcgcgaaa acatcgcccc cggactttcc 300
gataaaatga ccgtcaccct gttgccgggc gaatacgaaa tgacttgccg tcttttgacc 360
aatccgcgcg gcaagctggt ggtaaccgac agcggcttta aagacaccgc caacgaagcg 420
gatttggaat aactgtccca accgctcgcc gactataaag cctatgttca aggcgaagtc 480
aaagagctgg tggcgaaaac caaaaccttt accgaagccg tcaaagcagg cgacattgaa 540
aaggcgaaat ccctgtttgc cgacaccgcg gtccattacg aacgcacgca accgattgcc 600
gagcttttca gcgaactcga ccccgtcacg gatgcgcgtg aagacgactt caaagacggc 660
gcgaaagatg ccggatttac cggttccac cgtatcgaat acgccctttg ggtggaaaaa 720
gacgtgtccg gcgtgaagga aattgcagcg aaactgatga ccgatgtcga agccctgcaa 780
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<210> 2572

<211> 388

<212> PRT

<213> Neisseria meningitidis

<400> 2572

Met Arg Lys Phe Asn Leu Thr Ala Leu Ser Val Met Leu Ala Leu Gly  
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Leu Thr Ala Cys Gln Pro Pro Glu Ala Glu Lys Ala Ala Pro Ala Ala  
 20 25 30

Ser Gly Glu Ala Gln Thr Ala Asn Glu Gly Gly Ser Val Ser Ile Ala  
 35 40 45

Val	Asn	Asp	Asn	Ala	Cys	Glu	Pro	Met	Glu	Leu	Thr	Val	Pro	Ser	Gly	50	55	60	
Gln	Val	Val	Phe	Asn	Ile	Lys	Asn	Asn	Ser	Gly	Arg	Lys	Leu	Glu	Trp	65	70	75	80
Glu	Ile	Leu	Lys	Gly	Val	Met	Val	Val	Asp	Glu	Arg	Glu	Asn	Ile	Ala	85	90	95	
Pro	Gly	Leu	Ser	Asp	Lys	Met	Thr	Val	Thr	Leu	Leu	Pro	Gly	Glu	Tyr	100	105	110	
Glu	Met	Thr	Cys	Gly	Leu	Leu	Thr	Asn	Pro	Arg	Gly	Lys	Leu	Val	Val	115	120	125	
Thr	Asp	Ser	Gly	Phe	Lys	Asp	Thr	Ala	Asn	Glu	Ala	Asp	Leu	Glu	Lys	130	135	140	
Leu	Ser	Gln	Pro	Leu	Ala	Asp	Tyr	Lys	Ala	Tyr	Val	Gln	Gly	Glu	Val	145	150	155	160
Lys	Glu	Leu	Val	Ala	Lys	Thr	Lys	Thr	Phe	Thr	Glu	Ala	Val	Lys	Ala	165	170	175	
Gly	Asp	Ile	Glu	Lys	Ala	Lys	Ser	Leu	Phe	Ala	Asp	Thr	Arg	Val	His	180	185	190	
Tyr	Glu	Arg	Ile	Glu	Pro	Ile	Ala	Glu	Leu	Phe	Ser	Glu	Leu	Asp	Pro	195	200	205	
Val	Ile	Asp	Ala	Arg	Glu	Asp	Asp	Phe	Lys	Asp	Gly	Ala	Lys	Asp	Ala	210	215	220	
Gly	Phe	Thr	Gly	Phe	His	Arg	Ile	Glu	Tyr	Ala	Leu	Trp	Val	Glu	Lys	225	230	235	240
Asp	Val	Ser	Gly	Val	Lys	Glu	Ile	Ala	Ala	Lys	Leu	Met	Thr	Asp	Val	245	250	255	
Glu	Ala	Leu	Gln	Lys	Glu	Ile	Asp	Ala	Leu	Ala	Phe	Pro	Pro	Gly	Lys	260	265	270	
Val	Val	Gly	Gly	Ala	Ser	Glu	Leu	Ile	Glu	Glu	Val	Ala	Gly	Ser	Lys	275	280	285	
Ile	Ser	Gly	Glu	Glu	Asp	Arg	Tyr	Ser	His	Thr	Asp	Leu	Ser	Asp	Phe	290	295	300	
Gln	Ala	Asn	Val	Asp	Gly	Ser	Lys	Lys	Ile	Val	Asp	Leu	Phe	Arg	Pro	305	310	315	320
Leu	Ile	Glu	Thr	Lys	Asn	Lys	Ala	Leu	Leu	Glu	Lys	Thr	Asp	Thr	Asn	325	330	335	
Phe	Lys	Gln	Val	Asn	Glu	Ile	Leu	Ala	Lys	Tyr	Arg	Thr	Lys	Asp	Gly	340	345	350	

Phe Glu Thr Tyr Asp Lys Leu Gly Glu Ala Asp Arg Lys Ala Leu Gln  
 355 360 365

Ala Ser Ile Asn Ala Leu Ala Glu Asp Leu Ala Gln Leu Arg Gly Ile  
 370 375 380

Leu Gly Leu Lys  
 385

<210> 2573  
 <211> 972  
 <212> DNA  
 <213> Neisseria gonorrhoeae

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 ctgaccgtgc cgaccgcgcg gggcgatgcc gttgtgccga agaattcccga acgcgtcgcc 180  
 gtgtacgact gggcggcggt ggatacgctg accgagccgg gcgtgaatgt gggcgcaacc 240  
 accgcgccgg tgcgcgtgga ctatttgcag cctgcatttg acaaggcggc aacggtgggg 300  
 acgctgtttg agcccgattg cgaatccctg caccgccaca atccgcagtt tgtcattacc 360  
 ggcggggccg gtgcggaagc gtatgaacag ttggcgaaaa acgcgaccac catagatttg 420  
 acggtggaca acggcaatat ccgcaccagc ggcgagaagc agatggagac cctgtcgcgg 480  
 attttcggta aggaagcgcg cgtggcgga ttgaatgcgc agattgacgc gctgttcgcc 540  
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 aaggtgtccg ccttcggcac gcaatcgcg ttggcaagtt ggatacacgg cgacatcggc 660  
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 caggaagggc cggctgccgt ggaagtgttg gataacgcgc tggtatgcgg cacgaacgct 840  
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 cggcagttga tacaggcggc ggaacagttg aaggcggcgt ttgaaaaggc agaaccctgt 960  
 gcggcgcgag ag 972

<210> 2574  
 <211> 323  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 2574  
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 20 25 30  
 Ala Ala Ser Thr Pro Val Ala Thr Leu Thr Val Pro Thr Ala Arg Gly  
 35 40 45  
 Asp Ala Val Val Pro Lys Asn Pro Glu Arg Val Ala Val Tyr Asp Trp  
 50 55 60  
 Ala Ala Leu Asp Thr Leu Thr Glu Pro Gly Val Asn Val Gly Ala Thr  
 65 70 75 80

Thr Ala Pro Val Arg Val Asp Tyr Leu Gln Pro Ala Phè Asp Lys Ala  
                     85                    90                    95  
 Ala Thr Val Gly Thr Leu Phe Glu Pro Asp Cys Glu Ser Leu His Arg  
                     100                    105                    110  
 His Asn Pro Gln Phe Val Ile Thr Gly Gly Pro Gly Ala Glu Ala Tyr  
                     115                    120                    125  
 Glu Gln Leu Ala Lys Asn Ala Thr Thr Ile Asp Leu Thr Val Asp Asn  
                     130                    135                    140  
 Gly Asn Ile Arg Thr Ser Gly Glu Lys Gln Met Glu Thr Leu Ser Arg  
                     145                    150                    155                    160  
 Ile Phe Gly Lys Glu Ala Arg Val Ala Glu Leu Asn Ala Gln Ile Asp  
                     165                    170                    175  
 Ala Leu Phe Ala Gln Lys Arg Glu Ala Ala Lys Gly Lys Gly Arg Gly  
                     180                    185                    190  
 Leu Val Leu Ser Val Thr Gly Asn Lys Val Ser Ala Phe Gly Thr Gln  
                     195                    200                    205  
 Ser Arg Leu Ala Ser Trp Ile His Gly Asp Ile Gly Leu Pro Pro Val  
                     210                    215                    220  
 Asp Glu Ser Leu Arg Asn Glu Gly His Gly Gln Pro Val Ser Phe Glu  
                     225                    230                    235                    240  
 Tyr Ile Lys Glu Lys Asn Pro Gly Trp Ile Phe Ile Ile Asp Arg Thr  
                     245                    250                    255  
 Ala Ala Ile Gly Gln Glu Gly Pro Ala Ala Val Glu Val Leu Asp Asn  
                     260                    265                    270  
 Ala Leu Val Cys Gly Thr Asn Ala Trp Lys Arg Lys Gln Ile Ile Val  
                     275                    280                    285  
 Met Pro Ala Ala Asn Tyr Ile Val Ala Gly Gly Ala Arg Gln Leu Ile  
                     290                    295                    300  
 Gln Ala Ala Glu Gln Leu Lys Ala Ala Phe Glu Lys Ala Glu Pro Val  
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 Ala Ala Gln

<210> 2575

<211> 966

<212> DNA

<213> Neisseria meningitidis

<400> 2575

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accgcgcggg gcgatgccgt tgtgccgaag aatccccgaac gcgtcgccgt gtacgactgg 180
gcggcggttg atacgctgac cgaattgggc gtgaatgtgg gcgcaaccac cgcgccggtg 240
cgcgtggatt atttgcagcc tgcatttgac aaggcggcaa cgttggggac gctgttcgag 300
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gcggaagcgt atgaacagtt agcgaaaaac gcgaccacca tagatctgac ggtggacaac 420
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aaaaaccccg attggatttt catcatcgac cgtaccgccg ccatcgggca ggaagggccg 780
gcggctgtcg aagtattgga taacgcgctg gtacgcggca cgaacgcttg gaagcgcaag 840
caaatcatcg tcatgcctgc cgcgaactac attgtcgcgg gcggcgcgcg gcagttgatt 900
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aagtag
966

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<210> 2576

<211> 321

<212> PRT

<213> *Neisseria meningitidis*

<400> 2576

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      20              25              30

Ser Ala Ala Thr Leu Thr Val Pro Thr Ala Arg Gly Asp Ala Val Val
      35              40              45

Pro Lys Asn Pro Glu Arg Val Ala Val Tyr Asp Trp Ala Ala Leu Asp
      50              55              60

Thr Leu Thr Glu Leu Gly Val Asn Val Gly Ala Thr Thr Ala Pro Val
      65              70              75              80

Arg Val Asp Tyr Leu Gln Pro Ala Phe Asp Lys Ala Ala Thr Val Gly
      85              90              95

Thr Leu Phe Glu Pro Asp Tyr Glu Ala Leu His Arg Tyr Asn Pro Gln
      100             105             110

Leu Val Ile Thr Gly Gly Pro Gly Ala Glu Ala Tyr Glu Gln Leu Ala
      115             120             125

Lys Asn Ala Thr Thr Ile Asp Leu Thr Val Asp Asn Gly Asn Ile Arg
      130             135             140

Thr Ser Gly Glu Lys Gln Met Glu Thr Leu Ala Arg Ile Phe Gly Lys
      145             150             155             160

Glu Ala Arg Ala Ala Glu Leu Lys Ala Gln Ile Asp Ala Leu Phe Ala
      165             170             175

Gln Thr Arg Glu Ala Ala Lys Gly Lys Gly Arg Gly Leu Val Leu Ser

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180					185					190						
Val	Thr	Gly	Asn	Lys	Val	Ser	Ala	Phe	Gly	Thr	Gln	Ser	Arg	Leu	Ala	
195					200					205						
Ser	Trp	Ile	His	Gly	Asp	Ile	Gly	Leu	Pro	Pro	Val	Asp	Glu	Ser	Leu	
210					215					220						
Arg	Asn	Glu	Gly	His	Gly	Gln	Pro	Val	Ser	Phe	Glu	Tyr	Ile	Lys	Glu	
225					230					235					240	
Lys	Asn	Pro	Asp	Trp	Ile	Phe	Ile	Ile	Asp	Arg	Thr	Ala	Ala	Ile	Gly	
245					250					255						
Gln	Glu	Gly	Pro	Ala	Ala	Val	Glu	Val	Leu	Asp	Asn	Ala	Leu	Val	Arg	
260					265					270						
Gly	Thr	Asn	Ala	Trp	Lys	Arg	Lys	Gln	Ile	Ile	Val	Met	Pro	Ala	Ala	
275					280					285						
Asn	Tyr	Ile	Val	Ala	Gly	Gly	Ala	Arg	Gln	Leu	Ile	Gln	Ala	Ala	Glu	
290					295					300						
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Lys

<210> 2577  
 <211> 966  
 <212> DNA  
 <213> Neisseria meningitidis

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 accgcgcggg gcgatgccgt tgtgccgaag aatcccgaac gcgtcgccgt gtacgactgg 180  
 gcggcggttg atacgctgac cgaattgggt gtgaatgtgg gcgcaaccac cgcgccggtg 240  
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 aaaaaccccg atttgatttt catcatcgac cgtaccgccg ccatcgggca ggaagggccg 780  
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<210> 2578  
 <211> 321

<212> PRT

<213> Neisseria meningitidis

<400> 2578

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20 25 30

Ser Ala Ala Thr Leu Thr Val Pro Thr Ala Arg Gly Asp Ala Val Val  
35 40 45

Pro Lys Asn Pro Glu Arg Val Ala Val Tyr Asp Trp Ala Ala Leu Asp  
50 55 60

Thr Leu Thr Glu Leu Gly Val Asn Val Gly Ala Thr Thr Ala Pro Val  
65 70 75 80

Arg Val Asp Tyr Leu Gln Pro Ala Phe Asp Lys Ala Ala Thr Val Gly  
85 90 95

Thr Leu Phe Glu Pro Asp Tyr Glu Ala Leu His Arg Tyr Asn Pro Gln  
100 105 110

Leu Val Ile Thr Gly Gly Pro Gly Ala Glu Ala Tyr Glu Gln Leu Ala  
115 120 125

Lys Asn Ala Thr Thr Ile Asp Leu Thr Val Asp Asn Gly Asn Ile Arg  
130 135 140

Thr Ser Gly Glu Lys Gln Met Glu Thr Leu Ala Arg Ile Phe Gly Lys  
145 150 155 160

Glu Ala Arg Ala Ala Glu Leu Lys Ala Gln Ile Asp Ala Leu Phe Ala  
165 170 175

Gln Thr Arg Glu Ala Ala Lys Gly Lys Gly Arg Gly Leu Val Leu Ser  
180 185 190

Val Thr Gly Asn Lys Val Ser Ala Phe Gly Thr Gln Ser Arg Leu Ala  
195 200 205

Ser Trp Ile His Gly Asp Ile Gly Leu Pro Pro Val Asp Glu Ser Leu  
210 215 220

Arg Asn Glu Gly His Gly Gln Pro Val Ser Phe Glu Tyr Ile Lys Glu  
225 230 235 240

Lys Asn Pro Asp Trp Ile Phe Ile Ile Asp Arg Thr Ala Ala Ile Gly  
245 250 255

Gln Glu Gly Pro Ala Ala Val Glu Val Leu Asp Asn Ala Leu Val Arg  
260 265 270

Gly Thr Asn Ala Trp Lys Arg Lys Gln Ile Ile Val Met Pro Ala Ala

275

280

285

Asn Tyr Ile Val Ala Gly Gly Ser Arg Gln Leu Ile Gln Ala Ala Glu  
 290 295 300

Gln Leu Lys Glu Ala Phe Glu Lys Ala Glu Pro Val Ala Ala Gly Lys  
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Glu

<210> 2579

<211> 1014

<212> DNA

<213> Neisseria meningitidis

<400> 2579

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 gataccagac aaatttggtc attgaatgat ttaagcaagg aagaactggc aagcattcaa 180  
 gacacaaatg gcaaagttat tactgtgtct aatcctggta ttttcaataa tcgagaagat 240  
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 aataaagtgt tccaaggcta tttacccaaa accaattcag aaaaactgaa tcaagatatt 480  
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<210> 2580

<211> 337

<212> PRT

<213> Neisseria meningitidis

<400> 2580

Met Ala Trp Ser Met Phe Ala Thr Thr Gln Ala Asp Arg Ala Val Arg  
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 20 25 30

Glu Lys Thr Gly Lys Val Ser Phe Asp Thr Arg Gln Ile Trp Ser Leu  
 35 40 45

Asn Asp Leu Ser Lys Glu Glu Leu Ala Ser Ile Gln Asp Thr Asn Gly  
 50 55 60

Lys Val Ile Thr Val Ser Asn Pro Gly Ile Phe Asn Asn Arg Glu Asp  
 65 70 75 80



Ser Leu Ser Asn Ala Ala Lys Gln Asn Arg Asn Ser Thr Asn Gly Ser  
                             85                            90                            95  
 Gly Val Ile Ala Val Met Asn Pro Pro Thr Gly Lys Tyr Lys Ser Asp  
                             100                            105                            110  
 Ser Asn Asn Lys Ile Lys Asp Phe Leu Trp Leu Gly Ser Ser Leu Val  
                             115                            120                            125  
 Ser Glu Leu Met Tyr Val Gly Tyr Asp Gln Leu Asn Asn Lys Val Phe  
                             130                            135                            140  
 Gln Gly Tyr Leu Pro Lys Thr Asn Ser Glu Lys Leu Asn Gln Asp Ile  
 145                            150                            155                            160  
 Tyr Arg Glu Val Gln Lys Met Gly Asn Gly Trp Ser Val Asp Thr Ser  
                             165                            170                            175  
 Asn His Ser Arg Gly Gly Ile Thr Ala Ser Val Ser Leu Lys Asp Trp  
                             180                            185                            190  
 Val Asn Asn Gln Lys Gln Asn Gly Ile Ala Pro Ile Arg Lys Ala Arg  
                             195                            200                            205  
 Phe Tyr Gly Thr Ala Thr Asn Val Gln Asn Asp Tyr Ala Asp Val Leu  
                             210                            215                            220  
 Gln Lys Asn Gly Tyr Thr Tyr Thr Gly Ala Asp Gly Lys Thr Tyr Asn  
 225                            230                            235                            240  
 Ser Gly Ser Tyr Ser Ile Val His Asp Lys Asp Phe Val Gly Asn Lys  
                             245                            250                            255  
 Trp Ile Pro Phe Leu Leu Gly Thr Asn Asp Thr Thr Gln Gly Thr Cys  
                             260                            265                            270  
 Lys Gly Leu Cys Tyr Ser His Ser Ser Tyr Phe Ala Glu Val Pro Lys  
                             275                            280                            285  
 Ala Gly Thr Lys Glu Phe Asp Asp Tyr Val Lys Ile Trp Gly Glu Val  
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 Glu Tyr Asp Ala Gln Gly Lys Pro Ile Asn Lys Ser Lys Pro Ile Leu  
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 Phe

<210> 2581  
 <211> 1413  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2581

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gacattcccg attttcttac tgaaatcaaa gattattcag aattttccgt gacagatgaa 180
aatggaacct acctgcattg ggacaaattc cgccggattc acacggaaga tacgcggatg 240
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acaaaagacg aaatcatgat agtgaacaac tatcacttga tgaaaaaagc ggtagaattg 600
aaaaatacgc cggttaagtgt tgaaatgatt ttggatttgc accgcattgc taccagtaac 660
gctattgaaa acaaggccga gcccgacaa ttcaggcagg atgacgaaat ctttatcgcc 720
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cggcaaatg gtatcctgca aaaagcagtg gaagaaagcg gaaaaatctt tactgcacaa 1260
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<210> 2582

<211> 470

<212> PRT

<213> *Neisseria meningitidis*

<400> 2582

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Met Gln His Leu Thr Glu Arg Met Thr Gln Ile Ala Lys Leu Leu Asn
 20                      25                      30

Ser Ser Ala Asn Asn Pro Asp Ile Asp Ile Pro Asp Phe Leu Thr Glu
 35                      40                      45

Ile Lys Asp Tyr Ser Glu Phe Ser Val Thr Asp Glu Asn Gly Thr Tyr
 50                      55                      60

Leu His Trp Asp Lys Phe Arg Arg Ile His Thr Glu Asp Thr Arg Met
 65                      70                      75                      80

Lys Trp Arg Ala Val Lys Glu Ser Arg Lys Lys Ile Gln Lys Pro Ile
 85                      90                      95

Asp Phe Pro Phe Glu His Gln Phe Trp Phe Cys Ile Pro Asp Ser Leu
100                      105                      110

Gln Ala Arg Leu His Leu Ile Asp Lys Ser Cys Gly Ser Ser Ile Gly
115                      120                      125
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Thr 130	Ser	Ser	Leu	Gly	Gly	Phe	Gly	Arg	Ser	Glu	Gln	Asn	Arg	Phe	Leu
						135					140				
Leu 145	Lys	Ser	Leu	Ile	Met	Glu	Glu	Ala	Ile	Thr	Ser	Ala	Gln	Leu	Glu 160
					150					155					
Gly	Ala	Ala	Thr	Thr	Arg	Lys	Val	Ala	Lys	Asp	Met	Leu	Lys	Ser	Gln
				165					170					175	
Arg	Lys	Pro	Lys	Thr	Lys	Asp	Glu	Ile	Met	Ile	Val	Asn	Asn	Tyr	His
			180					185					190		
Leu	Met	Lys	Lys	Ala	Val	Glu	Leu	Lys	Asn	Thr	Pro	Leu	Ser	Val	Glu
		195					200					205			
Met	Ile	Leu	Asp	Leu	His	Arg	Ile	Ala	Thr	Ser	Asn	Ala	Ile	Glu	Asn
	210					215					220				
Lys	Ala	Glu	Pro	Gly	Gln	Phe	Arg	Gln	Asp	Asp	Glu	Ile	Phe	Ile	Ala
225					230					235					240
Asp	Ile	Asn	Gly	Asn	Ser	Leu	Tyr	Gln	Pro	Pro	Pro	His	Gly	Gln	Val
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His	Thr	Leu	Met	Glu	Glu	Val	Cys	Ala	Phe	Ala	Asn	Asn	Thr	Tyr	Asp
			260					265					270		
Gly	Val	Glu	Asn	Pro	Phe	Ile	His	Pro	Val	Val	Gln	Ala	Ile	Ile	Leu
		275					280					285			
His	Phe	Leu	Ile	Gly	Tyr	Ile	His	Pro	Phe	Gly	Asp	Gly	Asn	Gly	Arg
	290					295					300				
Thr	Ala	Arg	Ala	Leu	Phe	Tyr	Trp	Phe	Met	Leu	Lys	Asn	Gly	Tyr	Trp
305					310					315					320
Leu	Phe	Glu	Tyr	Ile	Ser	Ile	Ser	Arg	Leu	Leu	Lys	Asn	Ala	Pro	Ala
				325					330					335	
Gln	Tyr	Ala	Lys	Ser	Tyr	Leu	Tyr	Ala	Glu	Thr	Asp	Asp	Leu	Asp	Leu
			340					345					350		
Thr	Tyr	Phe	Ile	Tyr	Tyr	Gln	Cys	Asp	Ile	Ile	Lys	Arg	Ala	Val	Ala
		355					360					365			
Asp	Leu	Glu	His	Tyr	Ile	Ser	Asp	Lys	Gln	Lys	His	Gln	Gln	Glu	Phe
	370					375					380				
Lys	Ala	Ala	Ile	Ala	Gln	Tyr	Thr	Glu	Lys	Ile	Gly	Lys	Leu	Asn	Gln
385						390					395				400
Arg	Gln	Ile	Gly	Ile	Leu	Gln	Lys	Ala	Val	Glu	Glu	Ser	Gly	Lys	Ile
				405					410					415	
Phe	Thr	Ala	Gln	Glu	Ile	Ala	Asn	Gln	Tyr	Gly	Ile	Ser	Leu	Asn	Thr

420

425

430

Ala Arg Ser Asp Leu Ser Lys Leu Gly Glu Tyr Arg Phe Leu Val Pro  
 435 440 445

Phe Lys Ser Gly Asn Ala Leu Glu Tyr Val Ala Pro Gln Asp Leu Leu  
 450 455 460

Glu Arg Leu Glu Lys Lys  
 465 470

&lt;210&gt; 2583

&lt;211&gt; 1413

&lt;212&gt; DNA

<213> *Neisseria meningitidis*

&lt;400&gt; 2583

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 gacattcccc attttctttac tgaaatcaaa gattattcag aattttccgt gacagatgaa 180  
 aatggaacct acctgcattg ggacaaattc cgccggattc acacggaaga tacgcggatg 240  
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 aaaagctgcg gcagttctat cggcacgtct agcttgggtg gcttcggcag aagcgagcaa 420  
 aacagattct tgctcaagtc tctgattatg gaagaagcga ttacatccgc ccaactggaa 480  
 ggtgctggcta ccacgcgtaa agtggccaag gatattgctca aatcgacgag taaacccaaa 540  
 acaaaagacg aaatcatgat agtgaacaac tatcacttga tgaaaaaagc ggtagaattg 600  
 aaaaatacgc cgttaagtgt tgaaatgatt ttggatttgc accgcattgc taccagtaac 660  
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&lt;210&gt; 2584

&lt;211&gt; 470

&lt;212&gt; PRT

<213> *Neisseria meningitidis*

&lt;400&gt; 2584

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Met Gln His Leu Thr Glu Arg Met Thr Gln Ile Ala Lys Leu Leu Asn  
 20 25 30

Ser Ser Ala Asn Asn Pro Asp Ile Asp Ile Pro Asp Phe Leu Thr Glu  
 35 40 45  
 Ile Lys Asp Tyr Ser Glu Phe Ser Val Thr Asp Glu Asn Gly Thr Tyr  
 50 55 60  
 Leu His Trp Asp Lys Phe Arg Arg Ile His Thr Glu Asp Thr Arg Met  
 65 70 75 80  
 Lys Trp Arg Ala Val Lys Glu Ser Arg Lys Lys Ile Gln Lys Pro Ile  
 85 90 95  
 Asp Phe Pro Phe Glu His Gln Phe Trp Phe Cys Ile Pro Asp Ser Leu  
 100 105 110  
 Gln Ala Arg Leu His Leu Ile Asp Lys Ser Cys Gly Ser Ser Ile Gly  
 115 120 125  
 Thr Ser Ser Leu Gly Gly Phe Gly Arg Ser Glu Gln Asn Arg Phe Leu  
 130 135 140  
 Leu Lys Ser Leu Ile Met Glu Glu Ala Ile Thr Ser Ala Gln Leu Glu  
 145 150 155 160  
 Gly Ala Ala Thr Thr Arg Lys Val Ala Lys Asp Met Leu Lys Ser Gln  
 165 170 175  
 Arg Lys Pro Lys Thr Lys Asp Glu Ile Met Ile Val Asn Asn Tyr His  
 180 185 190  
 Leu Met Lys Lys Ala Val Glu Leu Lys Asn Thr Pro Leu Ser Val Glu  
 195 200 205  
 Met Ile Leu Asp Leu His Arg Ile Ala Thr Ser Asn Ala Ile Glu Asn  
 210 215 220  
 Lys Ala Glu Pro Gly Gln Phe Arg Gln Asp Asp Glu Ile Phe Ile Ala  
 225 230 235 240  
 Asp Ile Asn Gly Asn Ser Leu Tyr Gln Pro Pro Pro His Gly Gln Val  
 245 250 255  
 His Thr Leu Met Glu Glu Val Cys Ala Phe Ala Asn Asn Thr Tyr Asp  
 260 265 270  
 Gly Val Glu Asn Pro Phe Ile His Pro Val Val Gln Ala Ile Ile Leu  
 275 280 285  
 His Phe Leu Ile Gly Tyr Ile His Pro Phe Gly Asp Gly Asn Gly Arg  
 290 295 300  
 Thr Ala Arg Ala Leu Phe Tyr Trp Phe Met Leu Lys Asn Gly Tyr Trp  
 305 310 315 320  
 Leu Phe Glu Tyr Ile Ser Ile Ser Arg Leu Leu Lys Asn Ala Pro Ala  
 325 330 335

Gln Tyr Ala Lys Ser Tyr Leu Tyr Ala Glu Thr Asp Asp Leu Asp Leu  
                   340                                  345                                  350  
 Thr Tyr Phe Ile Tyr Tyr Gln Cys Asp Ile Ile Lys Arg Ala Val Ala  
                   355                                  360                                  365  
 Asp Leu Glu His Tyr Ile Ser Asp Lys Gln Lys His Gln Gln Glu Phe  
                   370                                  375                                  380  
 Lys Ala Ala Ile Ala Gln Tyr Thr Glu Lys Ile Gly Lys Leu Asn Gln  
                   385                                  390                                  395                                  400  
 Arg Gln Ile Gly Ile Leu Gln Lys Ala Val Glu Glu Ser Gly Lys Ile  
                                   405                                  410                                  415  
 Phe Thr Ala Gln Glu Ile Ala Asn Gln Tyr Gly Ile Ser Leu Asn Thr  
                                   420                                  425                                  430  
 Ala Arg Ser Asp Leu Ser Lys Leu Gly Glu Tyr Arg Phe Leu Val Pro  
                   435                                  440                                  445  
 Phe Lys Ser Gly Asn Ala Leu Glu Tyr Val Ala Pro Gln Asp Leu Leu  
                   450                                  455                                  460  
 Glu Arg Leu Glu Lys Lys  
                   465                                  470

<210> 2585  
 <211> 459  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2585  
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 caagtaccta ttgtggagat gatgacgtat atattgcctg tggttaaaaaa cgggcagttc 180  
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 tgtggcgaca atatttggtt gattcaatgg tttgcgccat tgggacacag tcatcaaatg 360  
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 agcgataagg gtttgagaat tttaactttt aaaacttga 459

<210> 2586  
 <211> 152  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2586  
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                   20                                  25                                  30

Trp Tyr Gln Ser Pro Thr His Arg Gln Val Pro Ile Val Glu Met Met  
 35 40 45

Thr Tyr Ile Leu Pro Val Leu Lys Asn Gly Gln Phe Ala Leu Phe Cys  
 50 55 60

Lys Gly Thr Gln Pro Ile Gly Tyr Ile Ser Trp Ala Tyr Phe Asp Glu  
 65 70 75 80

Val Ala Gln Ala His Tyr Leu Glu Ser Asp Arg His Leu Arg Asp Asn  
 85 90 95

Ser Asp Trp Asn Cys Gly Asp Asn Ile Trp Leu Ile Gln Trp Phe Ala  
 100 105 110

Pro Leu Gly His Ser His Gln Met Arg Ser Ala Val Arg Gln Leu Phe  
 115 120 125

Pro Ser Thr Thr Val Arg Ala Leu Tyr His Lys Gly Ser Asp Lys Gly  
 130 135 140

Leu Arg Ile Leu Thr Phe Lys Thr  
 145 150

<210> 2587

<211> 1290

<212> DNA

<213> Neisseria meningitidis

<400> 2587

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 gtatatatca gcaacaatat gccgcataac tttgcacagt attttccgga aggctttttg 240  
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 ctgcgcttgg caattctgtg cagagagact ttgggtcggg tacatgtgcg ctgtaatgac 360  
 ccgcttttta atgaatggat tgacgggttg gagatgaaaa atccaagaat attgactgaa 420  
 cgggatttgc tgggcataaa tgcccagacag gtttttcagc aatatatggc agaaatcttc 480  
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 ccttgcttgg ctgccaatga atttttatgc atgcagacca tcaaacaagc cggcattgcc 660  
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 ccttccaaga atacattgtt ggattttgct gagaaatatt gcgatttggg aagagaagat 1140  
 gcatccttta tgatagatac aatcgttcaa gctaaagaac aggttcttgt taaatactcg 1200  
 gatgtattgc gtgagaatga atggttggcg cagaagtggc attttatccc ggatgaaaat 1260  
 gaagaaggtc taccgtttac attccggtag 1290

<210> 2588

<211> 429

<212> PRT

<213> Neisseria meningitidis

<400> 2588

Met	Met	Lys	Ser	Ile	Leu	Thr	Val	Ser	Gly	Asn	Arg	Met	Arg	Lys	Pro
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Arg	Ile	Thr	Tyr	Leu	Asp	Val	Trp	Ala	Asn	Asp	Glu	Arg	Ile	Gly	Thr
			20					25					30		
Leu	Glu	Lys	Gly	Ala	Met	Tyr	Arg	Phe	Ala	Tyr	Asp	Asn	Pro	Asn	Ser
		35					40					45			
Ser	Leu	Leu	Gly	Leu	His	Tyr	Gln	Asp	Arg	Ser	Lys	Val	Tyr	Ile	Ser
	50					55					60				
Asn	Asn	Met	Pro	His	Ile	Phe	Ala	Gln	Tyr	Phe	Pro	Glu	Gly	Phe	Leu
65					70					75					80
Asp	Ala	His	Ile	Thr	Ser	Lys	Tyr	Ala	Phe	His	Asp	Ala	Pro	Phe	Glu
				85					90					95	
Asp	Asn	Glu	Met	Leu	Arg	Leu	Ala	Ile	Leu	Cys	Arg	Glu	Thr	Leu	Gly
			100					105					110		
Arg	Ile	His	Val	Arg	Cys	Asn	Asp	Pro	Leu	Phe	Asn	Glu	Trp	Ile	Asp
		115					120					125			
Gly	Leu	Glu	Met	Lys	Asn	Pro	Arg	Ile	Leu	Thr	Glu	Arg	Asp	Leu	Leu
	130					135					140				
Gly	Ile	Asn	Ala	Arg	Gln	Val	Phe	Gln	Gln	Tyr	Met	Ala	Glu	Ile	Phe
145					150					155					160
His	His	Gly	Arg	Phe	Val	Ser	Val	Ser	Gly	Ile	Gln	Gln	Lys	Met	Ser
				165					170					175	
Leu	Asp	Ala	Ile	Arg	Arg	Asn	Thr	Lys	Gln	Thr	Ala	Ser	Tyr	Ile	Ala
			180					185					190		
Lys	Gly	Phe	Asp	Ala	Ser	Glu	Tyr	Pro	Cys	Leu	Ala	Ala	Asn	Glu	Phe
		195					200					205			
Leu	Cys	Met	Gln	Thr	Ile	Lys	Gln	Ala	Gly	Ile	Ala	Val	Ala	Gln	Thr
	210					215					220				
Ser	Leu	Ser	Glu	Asp	Ser	Ser	Val	Leu	Leu	Val	Arg	Arg	Phe	Asp	Val
225					230					235				240	
Ser	Glu	Gln	Gly	Tyr	Phe	Leu	Gly	Met	Glu	Asp	Phe	Thr	Ser	Leu	Arg
				245					250					255	
Gln	Tyr	Ser	Val	Glu	Asp	Lys	Tyr	Lys	Gly	Ser	Tyr	Ala	Ala	Ile	Ala
			260					265					270		
Gln	Ile	Ile	Arg	Gln	Ile	Ser	Gly	Arg	Pro	Asp	Glu	Asp	Leu	Ile	His
		275					280					285			



Phe Phe Asn Gln Leu Ala Ala Ser Cys Ile Leu Lys Asn Gly Asp Ala  
 290 295 300

His Leu Lys Asn Phe Ser Val Leu Tyr His Asp Glu Tyr Asp Val Arg  
 305 310 315 320

Leu Ala Pro Val Tyr Asp Val Leu Asp Thr Ser Ile Tyr Arg Val Gly  
 325 330 335

Thr Gln Gly Ile Phe Asp Ala Tyr Asp Asp Thr Leu Ala Leu Asn Leu  
 340 345 350

Thr Asn His Gly Lys Lys Thr Tyr Pro Ser Lys Asn Thr Leu Leu Asp  
 355 360 365

Phe Ala Glu Lys Tyr Cys Asp Leu Gly Arg Glu Asp Ala Ser Phe Met  
 370 375 380

Ile Asp Thr Ile Val Gln Ala Lys Glu Gln Val Leu Val Lys Tyr Ser  
 385 390 395 400

Asp Val Leu Arg Glu Asn Glu Trp Leu Ala Gln Lys Trp His Phe Ile  
 405 410 415

Pro Asp Glu Asn Glu Glu Gly Leu Pro Phe Thr Phe Arg  
 420 425

<210> 2589

<211> 438

<212> DNA

<213> Neisseria meningitidis

<400> 2589

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 gagaacattc agggcagtggt ttatctaggc cgtgaaggca tcagtgaagc acacggaaca 180  
 atagccattc aggaactgac cgctcggttt gattggtttt actcctgtat ttcaaacatt 240  
 aagttttacc gccttgaaag tgatttgaac gcacaattta tcgctgatgg tgtgtatcaa 300  
 gccaaacagg ctttccttca acgtgttgaa caacttcgta tatccctaac agaagctgga 360  
 ttgtctgatg agcaaataca tcaggttctg gaaaaacaga aatttgaatt ggaaagtcct 420  
 aacctgaaat taaattaa 438

<210> 2590

<211> 145

<212> PRT

<213> Neisseria meningitidis

<400> 2590

Met Ser Arg Tyr Leu Ile Thr Phe Asp Met Asp Thr Asn Cys Leu Lys  
 1 5 10 15

Asp Asn Tyr His Gly Asn Asn Tyr Thr Asn Ala Tyr Ser Asp Ile Lys  
 20 25 30

Thr Ile Leu Ala Arg His Gly Phe Glu Asn Ile Gln Gly Ser Val Tyr  
35 40 45

Leu Gly Arg Glu Gly Ile Ser Glu Ala His Gly Thr Ile Ala Ile Gln  
50 55 60

Glu Leu Thr Ala Arg Phe Asp Trp Phe Tyr Ser Cys Ile Ser Asn Ile  
65 70 75 80

Lys Phe Tyr Arg Leu Glu Ser Asp Leu Asn Ala Gln Phe Ile Ala Asp  
85 90 95

Gly Val Tyr Gln Ala Lys Gln Ala Phe Leu Gln Arg Val Glu Gln Leu  
100 105 110

Arg Ile Ser Leu Thr Glu Ala Gly Leu Ser Asp Glu Gln Ile Asn Gln  
115 120 125

Val Leu Glu Lys Gln Lys Phe Glu Leu Glu Ser Pro Asn Leu Lys Leu  
130 135 140

Asn  
145

<210> 2591

<211> 561

<212> DNA

<213> Neisseria meningitidis

<400> 2591

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tcaaccgtcc aatacgggga tgacaacctc aagcggttga cagcggacaa acggaagcag 120  
tatgagttga acttcaagat ttccgagggt tctacgcgtg tagagtccga ctttaaagag 180  
actttgggtc ggttcggtag agatatgctt caagatatgc cccctaaaat ccgttcggca 240  
acgctggtag cgttgacgac cctgcttgct ggaggggcgt tgggttacgg ttatttggaa 300  
tacctgaagc aggttgcttc ggaagggtat cagaccgagc gtctgtataa tgccgtcgac 360  
cgtcttgacg aatcccaaga acggataacg tccgccatcc tgaaggggtg tagaggtgcc 420  
gatttcgtgc aaatcggcag acgttcctac agtagggagg atatatcgga ggcaaataga 480  
cgtgcagagc gtgtcccgtg tggcgcagag ttggtttcag acggcaattt taccgctggt 540  
ttatctgata taggggatta a 561

<210> 2592

<211> 186

<212> PRT

<213> Neisseria meningitidis

<400> 2592

Met Thr Ala Asn Phe Ala Gln Thr Leu Val Glu Ile Gln Asp Ser Leu  
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Tyr Arg Val Val Ser Thr Val Gln Tyr Gly Asp Asp Asn Leu Lys Arg  
20 25 30

Leu Thr Ala Asp Lys Arg Lys Gln Tyr Glu Leu Asn Phe Lys Ile Ser  
35 40 45

Glu Gly Ser Thr Arg Val Glu Ser Asp Phe Lys Glu Thr Leu Val Arg  
 50 55 60  
 Phe Gly Arg Asp Met Leu Gln Asp Met Pro Pro Lys Ile Arg Ser Ala  
 65 70 75 80  
 Thr Leu Val Ala Leu Thr Thr Leu Leu Val Gly Gly Ala Leu Gly Tyr  
 85 90 95  
 Gly Tyr Leu Glu Tyr Leu Lys Gln Val Ala Ser Glu Gly Tyr Gln Thr  
 100 105 110  
 Glu Arg Leu Tyr Asn Ala Val Asp Arg Leu Ala Glu Ser Gln Glu Arg  
 115 120 125  
 Ile Thr Ser Ala Ile Leu Lys Gly Ala Arg Gly Ala Asp Phe Val Gln  
 130 135 140  
 Ile Gly Arg Arg Ser Tyr Ser Arg Glu Asp Ile Ser Glu Ala Asn Arg  
 145 150 155 160  
 Arg Ala Glu Arg Val Pro Tyr Gly Ala Glu Leu Val Ser Asp Gly Asn  
 165 170 175  
 Phe Thr Ala Val Leu Ser Asp Ile Gly Asp  
 180 185

<210> 2593  
 <211> 561  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2593  
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 tatgagttga acttcaagat ttccgagggt tctacgcgtg tagagtccga ctttaaagag 180  
 actttggttc ggttcggtag agatatgctt caagatatgc cccctaaaat ccgttcggca 240  
 acgctggtag cgttgacgac cctgcttgtc ggaggggctg tgggttacgg ttatttggaa 300  
 tacctgaagc aggttgcttc ggaagggtat cagaccgagc gtctgtataa tgccgtcgac 360  
 cgtcttgtag aatcccaaga acggataacg tccgccatcc tgaagggtgc tagaggtgcc 420  
 gatttcgtgc aaatcggcag acgttcctac agtagggagg atatatcgga ggcaaataga 480  
 cgtgcagagc gtgtcccgta tggcgagagc ttggtttcag acggcaattt taccgctgtt 540  
 ttatctgata taggggatta a 561

<210> 2594  
 <211> 186  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2594  
 Met Thr Ala Asn Phe Ala Gln Thr Leu Val Glu Ile Gln Asp Ser Leu  
 1 5 10 15  
 Xaa Arg Val Val Ser Thr Val Gln Tyr Gly Asp Asp Asn Leu Lys Arg

20	25	30
Leu Thr Ala Asp Lys Arg Lys Gln Tyr Glu Leu Asn Phe Lys Ile Ser		
35	40	45
Glu Gly Ser Thr Arg Val Glu Ser Asp Phe Lys Glu Thr Leu Val Arg		
50	55	60
Phe Gly Arg Asp Met Leu Gln Asp Met Pro Pro Lys Ile Arg Ser Ala		
65	70	75
Thr Leu Val Ala Leu Thr Thr Leu Leu Val Gly Gly Ala Leu Gly Tyr		
85	90	95
Gly Tyr Leu Glu Tyr Leu Lys Gln Val Ala Ser Glu Gly Tyr Gln Thr		
100	105	110
Glu Arg Leu Tyr Asn Ala Val Asp Arg Leu Ala Glu Ser Gln Glu Arg		
115	120	125
Ile Thr Ser Ala Ile Leu Lys Gly Ala Arg Gly Ala Asp Phe Val Gln		
130	135	140
Ile Gly Arg Arg Ser Tyr Ser Arg Glu Asp Ile Ser Glu Ala Asn Arg		
145	150	155
Arg Ala Glu Arg Val Pro Tyr Gly Ala Glu Leu Val Ser Asp Gly Asn		
165	170	175
Phe Thr Ala Val Leu Ser Asp Ile Gly Asp		
180	185	

<210> 2595  
 <211> 564  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2595  
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 atgccggtaa gctataccga ctatcaatca gcagccaata aagggtgtaa tgacaaaaaa 180  
 accggtctga ccttcctga acatgttgct cctatcgaca atgcggaagg aaagaatctg 240  
 ctgcatgact tttcagacgg cctcacaatc ttaaccgttg ataccgataa agccgacaaa 300  
 attactgctg tccgagtagt ctggaataca gatgcaatgc ctcaaaaagc ggaaaaactg 360  
 tccaaagctg ccgcagcctt gattgcggca accgctccgg aagaccgcac aatgctgcgt 420  
 gataccggcg accaaatcga aatggcgatt gacagccata atgcgcaaaa agagccaacc 480  
 cgagaatggg cgcgtggtgg gattgcttat aaagtcactg ttaccaattt accgagcgtg 540  
 gttttgacgg caaaagctga gtaa 564

<210> 2596  
 <211> 187  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2596

Met Lys Ile Leu Ala Leu Leu Ile Ala Ala Thr Cys Ala Leu Ser Ala  
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 Gln Ala Gln Ser Glu Leu Lys Thr Met Pro Val Ser Tyr Thr Asp Tyr  
 35 40 45  
 Gln Ser Ala Ala Asn Lys Gly Leu Asn Asp Gln Lys Thr Gly Leu Thr  
 50 55 60  
 Leu Pro Glu His Val Val Pro Ile Asp Asn Ala Glu Gly Lys Asn Leu  
 65 70 75 80  
 Leu His Asp Phe Ser Asp Gly Leu Thr Ile Leu Thr Val Asp Thr Asp  
 85 90 95  
 Lys Ala Asp Lys Ile Thr Ala Val Arg Val Val Trp Asn Thr Asp Ala  
 100 105 110  
 Met Pro Gln Lys Ala Glu Lys Leu Ser Lys Ala Ala Ala Ala Leu Ile  
 115 120 125  
 Ala Ala Thr Ala Pro Glu Asp Arg Thr Met Leu Arg Asp Thr Gly Asp  
 130 135 140  
 Gln Ile Glu Met Ala Ile Asp Ser His Asn Ala Gln Lys Glu Pro Thr  
 145 150 155 160  
 Arg Glu Trp Ala Arg Gly Gly Ile Ala Tyr Lys Val Thr Val Thr Asn  
 165 170 175  
 Leu Pro Ser Val Val Leu Thr Ala Lys Ala Glu  
 180 185

<210> 2597  
 <211> 504  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2597  
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 cccgtctgct acggcggcga atacggcccg gatttggcgg aagtcgctgc tttccatcag 180  
 acggttattt ccgaaatcgt ccgcccgcac acggcgcaaa cttataaccgt atttatgatg 240  
 ggcttccagc ccggtttccc ttatctgggc ggcttgccc aagcattgca cacgccccgc 300  
 cgtgccgtgc cgagaacgtc cgttcctgcc ggctcggtcg gtatcggcgg cagtcagacc 360  
 ggtgtgtatc cgttcgcttc gcccggcggc tggcagatta tcggcagaac cgaattaccc 420  
 ttgttccgag ccgatttgaa tccgccgacc ctgctggcgg cgggtgacca agtccgcttt 480  
 gttgcagaaa ggattgagcc atga 504

<210> 2598  
 <211> 167

<212> PRT  
<213> Neisseria meningitidis

<400> 2598

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Met Asn Asn Leu Thr Val Phe Thr Arg Phe Asp Thr Asp Leu Ala Thr
 1             5             10             15

Leu Ala Asp Glu Leu Gln Tyr Val Trp Glu His Thr Ala Val Thr Asp
 20             25             30

His Gln Gly Lys Leu Val Glu Ile Pro Val Cys Tyr Gly Gly Glu Tyr
 35             40             45

Gly Pro Asp Leu Ala Glu Val Ala Ala Phe His Gln Thr Val Ile Ser
 50             55             60

Glu Ile Val Arg Arg His Thr Ala Gln Thr Tyr Thr Val Phe Met Met
 65             70             75             80

Gly Phe Gln Pro Gly Phe Pro Tyr Leu Gly Gly Leu Pro Glu Ala Leu
 85             90             95

His Thr Pro Arg Arg Ala Val Pro Arg Thr Ser Val Pro Ala Gly Ser
100            105            110

Val Gly Ile Gly Gly Ser Gln Thr Gly Val Tyr Pro Phe Ala Ser Pro
115            120            125

Gly Gly Trp Gln Ile Ile Gly Arg Thr Glu Leu Pro Leu Phe Arg Ala
130            135            140

Asp Leu Asn Pro Pro Thr Leu Leu Ala Ala Gly Asp Gln Val Arg Phe
145            150            155            160

Val Ala Glu Arg Ile Glu Pro
165
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<210> 2599  
<211> 504  
<212> DNA  
<213> Neisseria meningitidis

<400> 2599

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cccgtctgct acggcggcga atacggcccc gatttggcgg aagtcgctgc tttccatcag 180
acggttattt ccgaaatcgt ccgccgccat acggcgcaaa cttataccgt atttatgatg 240
ggcttccagc ctggtttccc ttatctgggc ggcttgcccg aagcattgca cagccccgc 300
cgtgccgtgc cgagaacgtc cgttcctgcc ggctcggtcg gtatcggcgg cagtcagacc 360
ggtgtgtatc cgttcgcttc gcccggcggc tggcagatta tcggcagaac cgaattaccc 420
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gttgacagaaa ggattgagcc atga                                     504
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<210> 2600  
<211> 167

<212> PRT  
<213> Neisseria meningitidis

<400> 2600

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Met Asn Asn Leu Thr Val Phe Thr Arg Phe Asp Thr Asp Leu Ala Thr
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Leu Ala Asp Glu Leu Gln Tyr Val Trp Glu His Thr Ala Val Thr Asp
      20             25             30

His Gln Gly Lys Leu Val Glu Ile Pro Val Cys Tyr Gly Gly Glu Tyr
      35             40             45

Gly Pro Asp Leu Ala Glu Val Ala Ala Phe His Gln Thr Val Ile Ser
      50             55             60

Glu Ile Val Arg Arg His Thr Ala Gln Thr Tyr Thr Val Phe Met Met
      65             70             75             80

Gly Phe Gln Pro Gly Phe Pro Tyr Leu Gly Gly Leu Pro Glu Ala Leu
      85             90             95

His Thr Pro Arg Arg Ala Val Pro Arg Thr Ser Val Pro Ala Gly Ser
      100            105            110

Val Gly Ile Gly Gly Ser Gln Thr Gly Val Tyr Pro Phe Ala Ser Pro
      115            120            125

Gly Gly Trp Gln Ile Ile Gly Arg Thr Glu Leu Pro Leu Phe Arg Ala
      130            135            140

Asp Leu Asn Pro Pro Thr Leu Leu Ala Ala Gly Asp Gln Val Arg Phe
      145            150            155            160

Val Ala Glu Arg Ile Glu Pro
      165
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<210> 2601  
<211> 4296  
<212> DNA  
<213> Neisseria meningitidis

<400> 2601

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tttgccgaaa ataaaggcgc gttcacgta ggtgcaagca atatttccat ccaagacaag 180
caaggcaaaa tattaggcag ggttctcaac ggcaccccca tgcccgactt ccgcgtcagc 240
aaccgccaaa ccgccatcgc caccctgggt caccccaat acgtcaacag tgtcaaacac 300
aacgtcggct acggttccat acaattcggc aacgacaccc aaaatccaga agaacaagcc 360
tatacctacc gcctcgtatc acgcaacccg caccggact acgactacca ccttccccgc 420
ctcaacaaac tggttaccga aatctcacct accgcactca gcagcgtacc cttgcttgga 480
aacggccagc caaaggccaa tgcctacctc gataccgacc gcttccccta ctttgtagca 540
ctcggctcag gcacgcaaca agtccgcaaa gcagacggca cgcgtacacg aaccgccccg 600
gcataccaat acctgaccgg cggcacggcg ctgaaagtat tgggggttcca aaaccacggc 660
ttactcgtcg gcggcagcct gaccgaccaa ccccttaaca cctacgcaat cgccggagac 720
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caaacgggca	aagccgcgcc	gagttacagc	aaaaccaatg	aagcagccat	agaaaaaac	1920
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tacagtgccg	atatctgccg	tcaggttgcc	aaagccgccg	acacgaacga	cctgacactc	3240
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gcctacaata	ccggccggca	acaggcggga	cgccgcacgc	accgccacct	taccgatccg	3540
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<210> 2602  
<211> 1431  
<212> PRT  
<213> Neisseria meningitidis

<400> 2602  
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Val Asp Tyr Gln Tyr Phe Arg Asp Phe Ala Glu Asn Lys Gly Ala Phe  
35 40 45  
Thr Val Gly Ala Ser Asn Ile Ser Ile Gln Asp Lys Gln Gly Lys Ile  
50 55 60  
Leu Gly Arg Val Leu Asn Gly Ile Pro Met Pro Asp Phe Arg Val Ser  
65 70 75 80  
Asn Arg Gln Thr Ala Ile Ala Thr Leu Val His Pro Gln Tyr Val Asn  
85 90 95  
Ser Val Lys His Asn Val Gly Tyr Gly Ser Ile Gln Phe Gly Asn Asp  
100 105 110  
Thr Gln Asn Pro Glu Glu Gln Ala Tyr Thr Tyr Arg Leu Val Ser Arg  
115 120 125  
Asn Pro His Pro Asp Tyr Asp Tyr His Leu Pro Arg Leu Asn Lys Leu  
130 135 140  
Val Thr Glu Ile Ser Pro Thr Ala Leu Ser Ser Val Pro Leu Leu Gly  
145 150 155 160  
Asn Gly Gln Pro Lys Ala Asn Ala Tyr Leu Asp Thr Asp Arg Phe Pro  
165 170 175  
Tyr Phe Val Arg Leu Gly Ser Gly Thr Gln Gln Val Arg Lys Ala Asp  
180 185 190  
Gly Thr Arg Thr Arg Thr Ala Pro Ala Tyr Gln Tyr Leu Thr Gly Gly  
195 200 205  
Thr Pro Leu Lys Val Leu Gly Phe Gln Asn His Gly Leu Leu Val Gly  
210 215 220  
Gly Ser Leu Thr Asp Gln Pro Leu Asn Thr Tyr Ala Ile Ala Gly Asp  
225 230 235 240  
Ser Gly Ser Pro Leu Phe Ala Phe Asp Lys His Glu Asn Arg Trp Val

245								250					255			
Leu	Ala	Gly	Val	Leu	Ser	Thr	Tyr	Ala	Gly	Phe	Asp	Asn	Phe	Phe	Asn	
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Lys	Tyr	Ile	Val	Thr	Gln	Pro	Glu	Phe	Ile	Arg	Ser	Thr	Ile	Arg	Gln	
			275				280						285			
Tyr	Glu	Thr	Arg	Leu	Asp	Val	Gly	Leu	Thr	Thr	Asn	Glu	Leu	Ile	Trp	
			290				295						300			
Arg	Asp	Asn	Gly	Asn	Gly	Asn	Ser	Thr	Leu	Gln	Gly	Leu	Asn	Glu	Arg	
305						310						315			320	
Ile	Thr	Leu	Pro	Ile	Ala	Asn	Pro	Ser	Leu	Ala	Pro	Gln	Asn	Asp	Ser	
			325						330						335	
Arg	His	Met	Pro	Ser	Glu	Asp	Ala	Gly	Lys	Thr	Leu	Ile	Leu	Ser	Ser	
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Arg	Phe	Asp	Asn	Lys	Thr	Leu	Met	Leu	Ala	Asp	Asn	Ile	Asn	Gln	Gly	
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Ala	Gly	Ala	Leu	Gln	Phe	Asp	Ser	Asn	Phe	Thr	Val	Val	Gly	Lys	Asn	
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His	Thr	Trp	Gln	Gly	Ala	Gly	Val	Ile	Val	Ala	Asp	Gly	Lys	Arg	Val	
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Phe	Trp	Gln	Val	Ser	Asn	Pro	Lys	Gly	Asp	Arg	Leu	Ser	Lys	Leu	Gly	
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Ala	Gly	Thr	Leu	Ile	Ala	Asn	Gly	Gln	Gly	Ile	Asn	Gln	Gly	Asp	Ile	
			420						425						430	
Ser	Ile	Gly	Glu	Gly	Thr	Val	Val	Leu	Ala	Gln	Lys	Ala	Ala	Ser	Asp	
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Gly	Ser	Lys	Gln	Ala	Phe	Asn	Gln	Val	Gly	Ile	Thr	Ser	Gly	Arg	Gly	
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Thr	Ala	Val	Leu	Ala	Asp	Ser	Gln	Gln	Ile	Lys	Pro	Glu	Asn	Leu	Tyr	
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Phe	Thr	His	Ile	Arg	His	Ala	Asp	Gly	Gly	Ala	Gln	Ile	Val	Asn	His	
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Ser	Pro	Glu	His	Val	Glu	Trp	Val	Gln	Trp	Gly	Asn	Arg	Pro	Gln	Gly	
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545		550		555		560
Asp Tyr Phe Ile	Leu Lys Pro Gly Gly	Asn Pro Arg Glu Phe	Phe Pro			
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Leu Asn Met Lys	Asn Ser Thr Ser Trp	Gln Phe Ile Gly	Asn Asn Arg			
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Gln Gln Ala Ala	Glu Gln Val Ala	Gln Ala Glu Asn	Ala Arg Pro Asp			
	595	600	605			
Leu Ile Thr Phe	Gly Gly Tyr Leu	Gly Glu Asn Ala	Gln Thr Gly Lys			
	610	615	620			
Ala Ala Pro Ser	Tyr Ser Lys Thr	Asn Glu Ala Ala	Ile Glu Lys Thr			
	625	630	635			640
Arg His Ile Ala	Asn Ala Ala Val	Tyr Gly Arg Pro	Glu Tyr Arg Tyr			
	645	650	655			
Asn Gly Ala Leu	Asn Leu His Tyr	Arg Pro Lys Arg	Thr Asp Ser Thr			
	660	665	670			
Leu Leu Leu Asn	Gly Gly Met Asn	Leu Asn Gly Glu	Val Leu Ile Glu			
	675	680	685			
Gly Gly Asn Met	Ile Val Ser Gly	Arg Pro Val Pro	His Ala Tyr Asp			
	690	695	700			
His Gln Ala Lys	Arg Glu Pro Val	Leu Glu Asn Glu	Trp Thr Asp Gly			
	705	710	715			720
Ser Phe Lys Ala	Ala Arg Phe Thr	Leu Arg Asn His	Ala Arg Leu Thr			
	725	730	735			
Ala Gly Arg Asn	Thr Ala His Leu	Asp Gly Asp Ile	Thr Ala Tyr Asp			
	740	745	750			
Leu Ser Gly Ile	Asp Leu Gly Phe	Thr Gln Gly Lys	Thr Pro Glu Cys			
	755	760	765			
Tyr Arg Ser Tyr	His Ser Gly Ser	Thr His Cys Thr	Pro Asn Ala Val			
	770	775	780			
Leu Lys Ala Glu	Asn Tyr Arg Ala	Leu Pro Ala Thr	Gln Val Arg Gly			
	785	790	795			800
Asp Ile Thr Leu	Asn Asp Arg Ser	Glu Leu Arg Leu	Gly Lys Ala His			
	805	810	815			
Leu Tyr Gly Ser	Ile Arg Ala Gly	Lys Asp Thr Ala	Val Arg Met Glu			
	820	825	830			
Ala Asp Ser Asn	Trp Thr Leu Ser	Gln Ser Ser His	Thr Gly Ala Leu			
	835	840	845			
Thr Leu Asp Gly	Ala Gln Ile Thr	Leu Asn Pro Asp	Phe Ala Asn Asn			

850	855	860
Thr His Asn Asn Arg Phe Asn Thr Leu Thr Val Asn Gly Thr Leu Asp 865 870 875 880		
Gly Phe Gly Thr Phe Arg Phe Leu Thr Gly Ile Val Arg Lys Gln Asn 885 890 895		
Ala Pro Pro Leu Lys Leu Glu Gly Asp Ser Arg Gly Ala Phe Gln Ile 900 905 910		
His Val Lys Asn Thr Gly Gln Glu Pro Gln Thr Thr Glu Ser Leu Ala 915 920 925		
Leu Val Ser Leu Asn Pro Lys His Ser His Gln Ala Arg Phe Thr Leu 930 935 940		
Gln Asn Gly Tyr Ala Asp Leu Gly Ala Tyr Arg Tyr Ile Leu Arg Lys 945 950 955 960		
Asn Asn Asn Gly Tyr Ser Leu Tyr Asn Pro Leu Lys Glu Ala Glu Leu 965 970 975		
Gln Ile Glu Ala Thr Arg Ala Glu His Glu Arg Asn Gln Gln Ala Tyr 980 985 990		
Asn Gln Leu Gln Ala Thr Asp Ile Ser Arg Gln Val Gln His Asp Ser 995 1000 1005		
Asp Ala Thr Arg Gln Ala Leu Gln Ala Trp Gln Asn Ser Gln Thr Glu 1010 1015 1020		
Leu Ala Arg Ile Asp Ser Gln Val Gln Tyr Leu Ser Ala Gln Leu Lys 1025 1030 1035 1040		
Gln Thr Asp Pro Leu Thr Gly Ile Leu Thr Arg Ala Gln Asn Leu Cys 1045 1050 1055		
Ala Ala Gln Gly Tyr Ser Ala Asp Ile Cys Arg Gln Val Ala Lys Ala 1060 1065 1070		
Ala Asp Thr Asn Asp Leu Thr Leu Phe Glu Thr Glu Leu Asp Thr Tyr 1075 1080 1085		
Ile Glu Arg Val Glu Met Ala Glu Ser Glu Leu Asp Lys Ala Arg Gln 1090 1095 1100		
Gly Gly Asp Ala Gln Ala Val Glu Thr Ala Arg His Ala Tyr Leu Asn 1105 1110 1115 1120		
Ala Leu Asn Arg Leu Ser Arg Gln Ile His Ser Leu Lys Thr Gly Val 1125 1130 1135		
Ala Gly Ile Arg Met Pro Asn Leu Ala Glu Leu Ile Ser Arg Ser Ala 1140 1145 1150		
Asn Thr Ala Val Ser Glu Gln Ala Ala Tyr Asn Thr Gly Arg Gln Gln		

1155	1160	1165
Ala Gly Arg Arg Ile Asp Arg His Leu Thr Asp Pro Gln Gln Gln Asn 1170	1175	1180
Ile Trp Leu Glu Thr Gly Thr Gln Gln Thr Asp Tyr His Ser Gly Thr 1185	1190	1195 1200
His Arg Pro Tyr Gln Gln Thr Thr Asn Tyr Ala His Ile Gly Ile Gln 1205	1210	1215
Thr Gly Ile Thr Asp Arg Leu Ser Val Gly Thr Ile Leu Thr Asp Glu 1220	1225	1230
Arg Thr Asn Asn Arg Phe Asp Glu Gly Val Ser Ala Arg Asn Arg Ser 1235	1240	1245
Asn Gly Ala His Leu Phe Val Lys Gly Glu Asn Gly Ala Leu Phe Ala 1250	1255	1260
Ala Ala Asp Leu Gly Tyr Ser Asn Ser Arg Thr Arg Phe Thr Asp Tyr 1265	1270	1275 1280
Asp Gly Ala Ala Val Arg Arg His Ala Trp Asp Ala Gly Ile Asn Thr 1285	1290	1295
Gly Ile Lys Ile Asp Thr Gly Ile Asn Leu Arg Pro Tyr Ala Gly Ile 1300	1305	1310
Arg Ile Asn Arg Ser Asn Gly Asn Arg Tyr Val Leu Asp Gly Ala Glu 1315	1320	1325
Ile Asn Ser Pro Ala Gln Ile Gln Thr Thr Trp His Ala Gly Ile Arg 1330	1335	1340
Leu Asp Lys Thr Val Glu Leu Gly Gln Ala Lys Leu Thr Pro Ala Phe 1345	1350	1355 1360
Ser Ser Asp Tyr Tyr His Thr Arg Gln Asn Ser Gly Ser Ala Leu Ser 1365	1370	1375
Val Asn Asp Arg Thr Leu Leu Gln Gln Ala Ala His Gly Thr Leu His 1380	1385	1390
Thr Leu Gln Ile Asp Ala Gly Tyr Lys Gly Trp Asn Ala Lys Leu His 1395	1400	1405
Ala Ala Tyr Gly Lys Asp Ser Asn Thr Ala Arg His Lys Gln Ala Gly 1410	1415	1420
Ile Lys Ile Gly Tyr Asn Trp 1425	1430	

<210> 2603  
 <211> 465  
 <212> DNA

<213> Neisseria gonorrhoeae

<400> 2603

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ttcgatgcga tggcggcata ccgcttcacg cccaagctga agctgcaa ataatgccgac 360
aacatcttca accgccatta ctacgcccgc gtcggcggca cgaacacctt taacattccc 420
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<210> 2604

<211> 154

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2604

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His Ala Gly Tyr Ser Tyr Leu His Ser Gln Ile Lys Thr Ala Ala Asn
      35             40             45

Pro Arg Asp Asp Gly Ile Phe Leu Leu Val Pro Lys His Ser Ala Asn
      50             55             60

Leu Trp Thr Thr Tyr Gln Val Thr Pro Gly Leu Thr Val Gly Gly Gly
      65             70             75             80

Val Asn Ala Met Ser Gly Ile Thr Ser Ser Ala Gly Met His Ala Gly
      85             90             95

Gly Tyr Ala Thr Phe Asp Ala Met Ala Ala Tyr Arg Phe Thr Pro Lys
      100            105            110

Leu Lys Leu Gln Ile Asn Ala Asp Asn Ile Phe Asn Arg His Tyr Tyr
      115            120            125

Ala Arg Val Gly Gly Thr Asn Thr Phe Asn Ile Pro Gly Ser Glu Arg
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Ser Leu Thr Ala Asn Leu Arg Tyr Ser Phe
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<210> 2605

<211> 2127

<212> DNA

<213> Neisseria meningitidis

<400> 2605

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accgtcggta caaaaatccc cgcttctttg cgcgaaattc cgcaatccgt cagcatcatt 240
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<210> 2606

<211> 708

<212> PRT

<213> Neisseria meningitidis

<400> 2606

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                20                   25                   30

Leu Glu Thr Val His Ile Lys Gly Gln Arg Ser Tyr Asn Ala Ile Ala
    35                   40                   45

Thr Glu Lys Asn Gly Asp Tyr Ser Ser Phe Ala Ala Thr Val Gly Thr
    50                   55                   60

Lys Ile Pro Ala Ser Leu Arg Glu Ile Pro Gln Ser Val Ser Ile Ile

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Thr Asn Gln Gln Val Lys Asp Arg Asn Val Asp Thr Phe Asp Gln Leu	85	90	95
Ala Arg Lys Thr Pro Gly Leu Arg Val Leu Ser Asn Asp Asp Gly Arg	100	105	110
Ser Ser Val Tyr Ala Arg Gly Tyr Glu Tyr Ser Glu Tyr Asn Ile Asp	115	120	125
Gly Leu Pro Ala Gln Met Gln Ser Ile Asn Gly Thr Leu Pro Asn Leu	130	135	140
Phe Ala Phe Asp Arg Val Glu Val Met Arg Gly Pro Ser Gly Leu Phe	145	150	155
Asp Ser Ser Gly Glu Met Gly Gly Ile Val Asn Leu Val Arg Lys Arg	165	170	175
Pro Thr Lys Ala Phe Gln Gly His Ala Ala Ala Gly Phe Gly Thr His	180	185	190
Lys Gln Tyr Lys Ala Glu Ala Asp Val Ser Gly Ser Leu Asn Ser Asp	195	200	205
Gly Ser Val Arg Gly Arg Val Met Ala Gln Thr Val Gly Ala Ser Pro	210	215	220
Arg Pro Ala Glu Lys Asn Asn Arg Arg Glu Thr Phe Tyr Ala Ala Ala	225	230	235
Asp Trp Asp Ile Asn Pro Asp Thr Val Leu Gly Ala Gly Tyr Leu Tyr	245	250	255
Gln Gln Arg Arg Leu Ala Pro Tyr Asn Gly Leu Pro Ala Asp Ala Asn	260	265	270
Asn Lys Leu Pro Ser Leu Pro Gln His Val Phe Val Gly Ala Asp Trp	275	280	285
Asn Lys Phe Lys Met His Ser His Asp Val Phe Ala Asp Leu Lys His	290	295	300
Tyr Phe Gly Asn Gly Gly Tyr Gly Lys Val Gly Met Arg Tyr Ser Asp	305	310	315
Arg Lys Ala Asp Ser Asn Tyr Thr Phe Ala Gly Ser Lys Leu Asn Asn	325	330	335
Thr Gly Gln Ala Asp Val Ala Gly Leu Gly Thr Asp Ile Lys Gln Lys	340	345	350
Ala Phe Ala Val Asp Ala Ser Tyr Ser Arg Pro Phe Ala Leu Gly Asn	355	360	365
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370	375	380
Thr Asn Glu Gln Gly Arg Ser Thr Leu Ser Lys Ser Val Ala Leu Asp 385 390 395 400		
Gly Phe Arg Ala Leu Pro Tyr Asn Gly Ile Leu Gln Asn Ala Arg Ala 405 410 415		
Gly Asn Lys Gly Phe Asn His Ser Val Thr Glu Glu Asn Leu Asp Glu 420 425 430		
Thr Gly Leu Tyr Ala Lys Thr Val Phe Arg Pro Leu Glu Gly Leu Ser 435 440 445		
Leu Ile Ala Gly Gly Arg Val Gly His His Lys Ile Glu Ser Gly Asp 450 455 460		
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Leu Lys Pro Arg Glu Gly Asn Gln Phe Glu Ile Gly Tyr Lys Gly Ser 515 520 525		
Tyr Met Asp Asp Arg Leu Asn Thr Arg Val Ser Phe Tyr Arg Met Lys 530 535 540		
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Tyr Ala Ala Leu Gly Lys Arg Val Met Glu Gly Val Glu Thr Glu Ile 565 570 575		
Ser Gly Ala Met Thr Pro Lys Trp Gln Ile His Ala Gly Tyr Ser Tyr 580 585 590		
Leu His Ser Gln Ile Lys Thr Ala Ser Asn Ser Arg Asp Glu Gly Ile 595 600 605		
Phe Leu Leu Met Pro Lys His Ser Ala Asn Leu Trp Thr Thr Tyr Gln 610 615 620		
Val Thr Ser Gly Leu Thr Ile Gly Gly Gly Val Asn Ala Met Ser Gly 625 630 635 640		
Ile Thr Ser Ser Ala Gly Ile His Ala Gly Gly Tyr Ala Thr Phe Asp 645 650 655		
Ala Met Ala Ala Tyr Arg Phe Thr Pro Lys Leu Lys Leu Gln Ile Asn 660 665 670		
Ala Asp Asn Ile Phe Asn Arg His Tyr Tyr Ala Arg Val Gly Ser Glu		

675

680

685

Ser Thr Phe Asn Ile Pro Gly Ser Glu Arg Ser Leu Thr Ala Asn Leu  
 690 695 700

Arg Tyr Ser Phe  
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&lt;210&gt; 2607

&lt;211&gt; 2112

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 2607

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&lt;210&gt; 2608

&lt;211&gt; 703

&lt;212&gt; PRT

&lt;213&gt; Neisseria meningitidis

<400> 2608

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			20					25					30			
Thr	Ala	Thr	Leu	Pro	Thr	Val	Ser	Val	Val	Gly	Gln	Ser	Asp	Thr	Ser	
		35					40					45				
Val	Leu	Lys	Gly	Tyr	Ile	Asn	Tyr	Asp	Glu	Ala	Ala	Val	Thr	Arg	Asn	
	50					55					60					
Gly	Gln	Leu	Ile	Lys	Glu	Thr	Pro	Gln	Thr	Ile	Asp	Thr	Leu	Asn	Ile	
65					70					75					80	
Gln	Lys	Asn	Lys	Asn	Tyr	Gly	Thr	Asn	Asp	Leu	Ser	Ser	Ile	Leu	Glu	
				85					90						95	
Gly	Asn	Ala	Gly	Ile	Asp	Ala	Ala	Tyr	Asp	Met	Arg	Gly	Glu	Ser	Ile	
			100					105					110			
Phe	Leu	Arg	Gly	Phe	Gln	Ala	Asp	Ala	Ser	Asp	Ile	Tyr	Arg	Asp	Gly	
		115					120					125				
Val	Arg	Glu	Ser	Gly	Gln	Val	Arg	Arg	Ser	Thr	Ala	Asn	Ile	Glu	Arg	
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Ser	Arg	Asn	Ile	Gly	Ala	Val	Tyr	Gly	Ser	Trp	Ala	Asn	Arg	Ser	Leu	
			180					185					190			
Asn	Met	Asp	Ile	Asn	Glu	Val	Leu	Asn	Lys	Asn	Val	Ala	Ile	Arg	Leu	
	195						200					205				
Thr	Gly	Glu	Val	Gly	Arg	Ala	Asn	Ser	Phe	Arg	Ser	Gly	Ile	Asp	Ser	
	210					215					220					
Lys	Asn	Val	Met	Val	Ser	Pro	Ser	Ile	Thr	Val	Lys	Leu	Asp	Asn	Gly	
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Leu	Lys	Trp	Thr	Gly	Gln	Tyr	Thr	Tyr	Asp	Asn	Val	Glu	Arg	Thr	Pro	
			245						250					255		
Asp	Arg	Ser	Pro	Thr	Lys	Ser	Val	Tyr	Asp	Arg	Phe	Gly	Leu	Pro	Tyr	
			260					265					270			
Arg	Met	Gly	Phe	Ala	His	Arg	Asn	Asp	Phe	Val	Lys	Asp	Lys	Leu	Gln	
	275						280					285				
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Gln Trp Gln Leu Ala His Arg Thr Ala Ala Gln Asp Phe Asp His Phe 305 310 315 320		
Tyr Ala Gly Ser Glu Asn Gly Asn Leu Ile Lys Arg Asn Tyr Ala Trp 325 330 335		
Gln Gln Thr Asp Asn Lys Thr Leu Ser Ser Asn Leu Thr Leu Asn Gly 340 345 350		
Asp Tyr Thr Ile Gly Arg Phe Glu Asn His Leu Thr Val Gly Met Asp 355 360 365		
Tyr Ser Arg Glu His Arg Asn Pro Thr Leu Gly Phe Ser Ser Ala Phe 370 375 380		
Ser Ala Ser Ile Asn Pro Tyr Asp Arg Ala Ser Trp Pro Ala Ser Gly 385 390 395 400		
Arg Leu Gln Pro Ile Leu Thr Gln Asn Arg His Lys Ala Asp Ser Tyr 405 410 415		
Gly Ile Phe Val Gln Asn Ile Phe Ser Ala Thr Pro Asp Leu Lys Phe 420 425 430		
Val Leu Gly Gly Arg Tyr Asp Lys Tyr Thr Phe Asn Ser Glu Asn Lys 435 440 445		
Leu Thr Gly Ser Ser Arg Gln Tyr Ser Gly His Ser Phe Ser Pro Asn 450 455 460		
Ile Gly Ala Val Trp Asn Ile Asn Pro Val His Thr Leu Tyr Ala Ser 465 470 475 480		
Tyr Asn Lys Gly Phe Ala Pro Tyr Gly Gly Arg Gly Gly Tyr Leu Ser 485 490 495		
Ile Asp Thr Leu Ser Ser Ala Val Phe Asn Ala Asp Pro Glu Tyr Thr 500 505 510		
Arg Gln Tyr Glu Thr Gly Val Lys Ser Ser Trp Leu Asp Asp Arg Leu 515 520 525		
Ser Thr Thr Leu Ser Ala Tyr Gln Ile Glu Arg Phe Asn Ile Arg Tyr 530 535 540		
Arg Pro Asp Pro Lys Asn Asn Pro Tyr Ile Tyr Ala Val Ser Gly Lys 545 550 555 560		
His Arg Ser Arg Gly Val Glu Leu Ser Ala Ile Gly Gln Ile Ile Pro 565 570 575		
Lys Lys Leu Tyr Leu Arg Gly Ser Leu Gly Val Met Gln Ala Lys Val 580 585 590		
Val Glu Asp Lys Glu Asn Pro Asp Arg Val Gly Ile His Leu Asn Asn		

595	600	605
Thr Ser Asn Val Thr Gly Asn Leu Phe Phe Arg Tyr Thr Pro Thr Glu		
610	615	620
Asn Leu Tyr Gly Glu Ile Gly Val Thr Gly Thr Gly Lys Arg Tyr Gly		
625	630	635
Tyr Asn Ser Arg Asn Lys Glu Val Thr Thr Leu Pro Gly Phe Ala Arg		
	645	650
		655
Val Asp Ala Met Leu Gly Trp Asn His Lys Asn Val Asn Val Thr Phe		
	660	665
		670
Ala Ala Ala Asn Leu Leu Asn Gln Lys Tyr Trp Arg Ser Asp Ser Met		
	675	680
		685
Pro Gly Asn Pro Arg Gly Tyr Thr Ala Arg Val Asn Tyr Arg Phe		
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<210> 2609  
 <211> 2112  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2609

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gttaccgcga	acggacagct	catcaaagaa	acgccgcaaa	ccatcgatac	gctcaatatc	240
cagaaaaaca	aaaattacgg	cacgaacgat	ttgagttcca	tcctcgaagg	caatgccggc	300
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tatgcaggca	gcgaaaatgg	caacttaatc	aaacgtaact	acgcctggca	gcagaccgac	1020
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cgagtgggca tccatttgaa taacaccagc aacgttaccg gcaacctgtt tttccgttat 1860  
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<210> 2610

<211> 703

<212> PRT

<213> Neisseria meningitidis

<400> 2610

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Thr Ala Thr Leu Pro Thr Val Ser Val Val Gly Gln Ser Asp Thr Ser  
 35 40 45

Val Leu Lys Gly Tyr Ile Asn Tyr Asp Glu Ala Ala Val Thr Arg Asn  
 50 55 60

Gly Gln Leu Ile Lys Glu Thr Pro Gln Thr Ile Asp Thr Leu Asn Ile  
 65 70 75 80

Gln Lys Asn Lys Asn Tyr Gly Thr Asn Asp Leu Ser Ser Ile Leu Glu  
 85 90 95

Gly Asn Ala Gly Ile Asp Ala Ala Tyr Asp Met Arg Gly Glu Ser Ile  
 100 105 110

Phe Leu Arg Gly Phe Gln Ala Asp Ala Ser Asp Ile Tyr Arg Asp Gly  
 115 120 125

Val Arg Glu Ser Gly Gln Val Arg Arg Ser Thr Ala Asn Ile Glu Arg  
 130 135 140

Val Glu Ile Leu Lys Gly Pro Ser Ser Val Leu Tyr Gly Arg Thr Asn  
 145 150 155 160

Gly Gly Gly Val Ile Asn Met Val Ser Lys Tyr Ala Asn Phe Lys Gln  
 165 170 175

Ser Arg Asn Ile Gly Thr Val Tyr Gly Ser Trp Ala Asn Arg Ser Leu  
 180 185 190

Asn Met Asp Ile Asn Glu Val Leu Asn Lys Asn Val Ala Ile Arg Leu  
 195 200 205

Thr Gly Glu Val Gly Arg Ala Asn Ser Phe Arg Ser Gly Ile Asp Ser  
 210 215 220

Lys Asn Val Met Val Ser Pro Ser Ile Thr Val Lys Leu Asp Asn Gly

225		230		235		240
Leu Lys Trp Thr Gly Gln Tyr Thr Tyr Asp Asn Val Glu Arg Thr Pro						
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Asp Arg Ser Pro Thr Lys Ser Val Tyr Asp Arg Phe Gly Leu Pro Tyr						
	260			265		270
Arg Met Gly Phe Ala His Arg Asn Asp Phe Val Lys Asp Lys Leu Gln						
	275			280		285
Val Trp Arg Ser Asp Leu Glu Tyr Ala Phe Asn Asp Lys Trp Arg Ala						
	290					300
Gln Trp Gln Leu Ala His Arg Thr Ala Ala Gln Asp Phe Asp His Phe						
	305		310		315	320
Tyr Ala Gly Ser Glu Asn Gly Asn Leu Ile Lys Arg Asn Tyr Ala Trp						
		325		330		335
Gln Gln Thr Asp Asn Lys Thr Leu Ser Ser Asn Leu Thr Leu Asn Gly						
		340		345		350
Asp Tyr Thr Ile Gly Arg Phe Glu Asn His Leu Thr Val Gly Met Asp						
		355		360		365
Tyr Ser Arg Glu His Arg Asn Pro Thr Leu Gly Phe Ser Ser Ala Phe						
		370		375		380
Ser Ala Ser Ile Asn Pro Tyr Asp Arg Ala Ser Trp Pro Ala Ser Gly						
		385		390		395
Arg Leu Gln Pro Ile Leu Thr Gln Asn Arg His Lys Ala Asp Ser Tyr						
		405		410		415
Gly Ile Phe Val Gln Asn Ile Phe Ser Ala Thr Pro Asp Leu Lys Phe						
		420		425		430
Val Leu Gly Gly Arg Tyr Asp Lys Tyr Thr Phe Asn Ser Glu Asn Lys						
		435		440		445
Leu Thr Gly Ser Ser Arg Gln Tyr Ser Gly His Ser Phe Ser Pro Asn						
		450		455		460
Ile Gly Ala Val Trp Asn Ile Asn Pro Val His Thr Leu Tyr Ala Ser						
		465		470		475
						480
Tyr Asn Lys Gly Phe Ala Pro Tyr Gly Gly Arg Gly Gly Tyr Leu Ser						
		485		490		495
Ile Asp Thr Leu Ser Ser Ala Val Phe Asn Ala Asp Pro Glu Tyr Thr						
		500		505		510
Arg Gln Tyr Glu Thr Gly Val Lys Ser Ser Trp Leu Asp Asp Arg Leu						
		515		520		525

Ser Thr Thr Leu Ser Ala Tyr Gln Ile Glu Arg Phe Asn Ile Arg Tyr  
 530 535 540  
 Arg Pro Asp Pro Lys Asn Asn Pro Tyr Ile Tyr Ala Val Ser Gly Lys  
 545 550 555 560  
 His Arg Ser Arg Gly Val Glu Leu Ser Ala Ile Gly Gln Ile Ile Pro  
 565 570 575  
 Lys Lys Leu Tyr Leu Arg Gly Ser Leu Gly Val Met Gln Ala Lys Val  
 580 585 590  
 Val Glu Asp Lys Glu Asn Pro Asp Arg Val Gly Ile His Leu Asn Asn  
 595 600 605  
 Thr Ser Asn Val Thr Gly Asn Leu Phe Phe Arg Tyr Thr Pro Thr Glu  
 610 615 620  
 Asn Leu Tyr Gly Glu Ile Gly Val Thr Gly Thr Gly Lys Arg Tyr Gly  
 625 630 635 640  
 Tyr Asp Ser Arg Asn Lys Glu Val Thr Thr Leu Pro Gly Phe Ala Arg  
 645 650 655  
 Val Asp Ala Met Leu Gly Trp Asn His Lys Asn Val Asn Val Thr Phe  
 660 665 670  
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<210> 2611  
 <211> 444  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2611  
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 tttcatagcc aaaaaatata ctttattaca ttatttttat tattttattt taattttggt 180  
 acaaaatcta tctatatggc aattatttat cctattttat atttttttac gataaaaaaa 240  
 tattatcctt actctaggaa agtgataatt ctattatcat tagcattatc tatatatattt 300  
 agttttatgg acttttactt tttttccata tattcagata accttagcta tgaaacggag 360  
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 attttatctt ttatcaacaa gtaa 444

<210> 2612  
 <211> 147  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2612  
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Leu Val Gln	Leu Cys Thr Ile Leu	Phe His Ser Gln Lys	Ile Tyr Phe
35	40	45	
Ile Thr Leu	Phe Leu Leu Phe Ile	Phe Asn Phe Val Thr	Lys Ser Ile
50	55	60	
Tyr Met Ala	Ile Ile Tyr Pro Ile Leu	Tyr Phe Phe Thr Ile	Lys Lys
65	70	75	80
Tyr Tyr Pro	Tyr Ser Arg Lys Val Ile	Ile Leu Leu Ser Leu	Ala Leu
85	90	95	
Ser Ile Tyr	Phe Ser Phe Met Asp Phe	Tyr Phe Phe Ser Ile	Tyr Ser
100	105	110	
Asp Asn Leu	Ser Tyr Glu Thr Glu Pro	Leu His Leu Tyr Ile	Pro Ile
115	120	125	
Ile Ile Asn	Phe Phe Ser Leu Leu Val	Ser Asn Phe Ile Leu	Ser Phe
130	135	140	
Ile Asn Lys			
145			

<210> 2613  
 <211> 444  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2613  
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 ttcatagcc aaaaaatata ctttattaca ttatttttat tattttattt taattttgtt 180  
 acaaaatcta tctatatggc aattatttat cctattttat atttttttac gataaaaaaa 240  
 tattatcctt actctaggaa agtgataatt ctattatcat tagcattatc tatatatattt 300  
 agttttatgg acttttactt tttttccata tattcagata accttagcta tgaaacggag 360  
 cctttacatt tatacatccc tattattatt aattttttct cacttttagt ttctaatttt 420  
 attttatcctt ttatcaacaa gtaa 444

<210> 2614  
 <211> 147  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2614  
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 20 25 30

Leu Val Gln Leu Cys Thr Ile Leu Phe His Ser Gln Lys Ile Tyr Phe  
           35                                  40                                  45  
 Ile Thr Leu Phe Leu Leu Phe Ile Phe Asn Phe Val Thr Lys Ser Ile  
           50                                  55                                  60  
 Tyr Met Ala Ile Ile Tyr Pro Ile Leu Tyr Phe Phe Thr Ile Lys Lys  
           65                                  70                                  75                                  80  
 Tyr Tyr Pro Tyr Ser Arg Lys Val Ile Ile Leu Leu Ser Leu Ala Leu  
                                   85                                  90                                  95  
 Ser Ile Tyr Phe Ser Phe Met Asp Phe Tyr Phe Phe Ser Ile Tyr Ser  
                                   100                                  105                                  110  
 Asp Asn Leu Ser Tyr Glu Thr Glu Pro Leu His Leu Tyr Ile Pro Ile  
           115                                  120                                  125  
 Ile Ile Asn Phe Phe Ser Leu Leu Val Ser Asn Phe Ile Leu Ser Phe  
           130                                  135                                  140  
 Ile Asn Lys  
 145

<210> 2615  
 <211> 1404  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2615  
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 ctaccocgttt cacttttttac cttgccacta tccctttccc catccggtttc ggctttttacg 180  
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 ggatggagcg tgcaggtggg acaaacctta ttgacgctg ccaaatttgc acaataccgc 420  
 caaagcaggt tcgatacgca ggctgcagaa cagcgtttcg atgcggcacg cgaagaattg 480  
 ctgttgaaag ttgcogaaag ttatttcaac gttttactca gccgagacac cgttgccgcc 540  
 catgcggcgg aaaaagaggc ttatgccag caggtaaggc aggcgcaggc tttattcaat 600  
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 gcccaagaaa tcgccgtatt ggctgagaaa caaacctatg aaaaccagtt gaacgactac 720  
 accgacctgg atagcaaaaca aatcgaggcc atagataccg ccaacctgtt ggcacgctat 780  
 ctgcccgaagc tggaaagtta cagtctggat gaatggcagc gcattgcctt atccaacaat 840  
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<210> 2616  
<211> 467  
<212> PRT  
<213> Neisseria meningitidis

<400> 2616

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			20					25					30		
Lys	Ser	Tyr	Phe	Ser	Lys	Tyr	Ile	Leu	Pro	Val	Ser	Leu	Phe	Thr	Leu
		35					40					45			
Pro	Leu	Ser	Leu	Ser	Pro	Ser	Val	Ser	Ala	Phe	Thr	Leu	Pro	Glu	Ala
	50					55					60				
Trp	Arg	Ala	Ala	Gln	Gln	His	Ser	Ala	Asp	Phe	Gln	Ala	Ser	His	Tyr
65					70					75					80
Gln	Arg	Asp	Ala	Val	Arg	Ala	Arg	Gln	Gln	Gln	Ala	Lys	Ala	Ala	Phe
				85					90						95
Leu	Pro	His	Val	Ser	Ala	Asn	Ala	Ser	Tyr	Gln	Arg	Gln	Pro	Pro	Ser
			100					105					110		
Ile	Ser	Ser	Thr	Arg	Glu	Thr	Gln	Gly	Trp	Ser	Val	Gln	Val	Gly	Gln
		115					120					125			
Thr	Leu	Phe	Asp	Ala	Ala	Lys	Phe	Ala	Gln	Tyr	Arg	Gln	Ser	Arg	Phe
	130					135					140				
Asp	Thr	Gln	Ala	Ala	Glu	Gln	Arg	Phe	Asp	Ala	Ala	Arg	Glu	Glu	Leu
145					150					155					160
Leu	Leu	Lys	Val	Ala	Glu	Ser	Tyr	Phe	Asn	Val	Leu	Leu	Ser	Arg	Asp
			165						170					175	
Thr	Val	Ala	Ala	His	Ala	Ala	Glu	Lys	Glu	Ala	Tyr	Ala	Gln	Gln	Val
			180					185					190		
Arg	Gln	Ala	Gln	Ala	Leu	Phe	Asn	Lys	Gly	Ala	Ala	Thr	Ala	Leu	Asp
		195					200					205			
Ile	His	Glu	Ala	Lys	Ala	Gly	Tyr	Asp	Asn	Ala	Leu	Ala	Gln	Glu	Ile
	210					215					220				
Ala	Val	Leu	Ala	Glu	Lys	Gln	Thr	Tyr	Glu	Asn	Gln	Leu	Asn	Asp	Tyr
225					230					235					240
Thr	Asp	Leu	Asp	Ser	Lys	Gln	Ile	Glu	Ala	Ile	Asp	Thr	Ala	Asn	Leu
				245					250					255	
Leu	Ala	Arg	Tyr	Leu	Pro	Lys	Leu	Glu	Arg	Tyr	Ser	Leu	Asp	Glu	Trp
			260					265						270	

Gln Arg Ile Ala Leu Ser Asn Asn His Glu Tyr Arg Met Gln Gln Leu  
 275 280 285  
 Ala Leu Gln Ser Ser Gly Gln Ala Leu Arg Ala Ala Gln Asn Ser Arg  
 290 295 300  
 Tyr Pro Thr Val Ser Ala His Val Gly Tyr Gln Asn Asn Leu Tyr Thr  
 305 310 315 320  
 Ser Ser Ala Gln Asn Asn Asp Tyr His Tyr Arg Gly Lys Gly Met Ser  
 325 330 335  
 Val Gly Val Gln Leu Asn Leu Pro Leu Tyr Thr Gly Gly Glu Leu Ser  
 340 345 350  
 Gly Lys Ile His Glu Ala Glu Ala Gln Tyr Gly Ala Ala Glu Ala Gln  
 355 360 365  
 Leu Thr Ala Thr Glu Arg His Ile Lys Leu Ala Val Arg Gln Ala Tyr  
 370 375 380  
 Thr Glu Ser Gly Ala Ala Arg Tyr Gln Ile Met Ala Gln Glu Arg Val  
 385 390 395 400  
 Leu Glu Ser Ser Arg Leu Lys Leu Lys Ser Thr Glu Thr Gly Gln Gln  
 405 410 415  
 Tyr Gly Ile Arg Asn Arg Leu Glu Val Ile Arg Ala Arg Gln Glu Val  
 420 425 430  
 Ala Gln Ala Glu Gln Lys Leu Ala Gln Ala Arg Tyr Lys Phe Met Leu  
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 Ala Tyr Leu Arg Leu Val Lys Glu Ser Gly Leu Gly Leu Glu Thr Val  
 450 455 460  
 Phe Ala Glu  
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<210> 2617

<211> 1404

<212> DNA

<213> *Neisseria meningitidis*

<400> 2617

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 ctaccgcgtt cacttttttac cttgccacta tccctttccc catccgtttc ggcttttacg 180  
 ctgcctgaag catggcgggc ggcgagcaa cattcggtcg attttcaagc gtccattac 240  
 cagcgtgatg cagtgcgcgc acggcaacaa caagccaagg ccgcattcct tccccatgta 300  
 tccgccaatg ccagctacca gcgccagccg ccatcgattt cttccaccgc cgaaacacag 360  
 ggatggagcg tgcaggtggg acaaacctta ttgacgctg ccaaatttgc acaataccgc 420  
 caaagcaggt tcgatacgca ggctgcagaa cagcgtttcg atgcggcacg cgaagaattg 480  
 ctgttgaaag ttgccgaaag ttatttcaac gttttactca gccgagacac cgttgccgcc 540  
 catgcggcgg aaaaagaggc ttatgccag caggttaaggc aggcgcaggc tttattcaat 600

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aaaggtgctg ccaccgcgct ggaatattcac gaagccaaag ccggttacga caatgccctg 660
gcccagaataa tcgccgtatt ggctgagaaa caaacctatg aaaaccagtt gaacgactac 720
accggcctgg acagcaaaaca aatcgaggcc atagataccg ccaacctgtt ggacgctat 780
ctgcccagc tggaaagcgtta cagtctggat gaatggcagc gcattgcctt atccaacaat 840
catgaataacc ggatgcagca gcttgccctg caaagcagcg gacaggcgct tcgggcagca 900
cagaacagcc gctatccac cgtttctgcc catgtcggct atcagaataa cctctacact 960
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caatacgggg ctgccgaagc acagctgacc gcaaccgagc ggcacatcaa actcgccgta 1140
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ttggaaagca gccgtttgaa actgaaatcg accgaaaccg gccacaata cggcatccgc 1260
aaccggctgg aagtaatacg ggcgcgagc gaagtcgccc aagcagaaca gaaactggct 1320
caagcacggt ataaattcat gctggcttat ttgcgcttg tgaaagagag cgggttaggg 1380
ttggaaacgg tatttgcgga ataa 1404

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<210> 2618

<211> 467

<212> PRT

<213> Neisseria meningitidis

<400> 2618

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Met Thr Leu Leu Asn Leu Met Ile Met Gln Asp Tyr Gly Ile Ser Val
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Cys Leu Thr Leu Thr Pro Tyr Leu Gln His Glu Leu Phe Ser Ala Met
  20             25             30

Lys Ser Tyr Phe Ser Lys Tyr Ile Leu Pro Val Ser Leu Phe Thr Leu
  35             40             45

Pro Leu Ser Leu Ser Pro Ser Val Ser Ala Phe Thr Leu Pro Glu Ala
  50             55             60

Trp Arg Ala Ala Gln Gln His Ser Ala Asp Phe Gln Ala Ser His Tyr
  65             70             75             80

Gln Arg Asp Ala Val Arg Ala Arg Gln Gln Gln Ala Lys Ala Ala Phe
  85             90             95

Leu Pro His Val Ser Ala Asn Ala Ser Tyr Gln Arg Gln Pro Pro Ser
 100             105             110

Ile Ser Ser Thr Arg Glu Thr Gln Gly Trp Ser Val Gln Val Gly Gln
 115             120             125

Thr Leu Phe Asp Ala Ala Lys Phe Ala Gln Tyr Arg Gln Ser Arg Phe
 130             135             140

Asp Thr Gln Ala Ala Glu Gln Arg Phe Asp Ala Ala Arg Glu Glu Leu
 145             150             155             160

Leu Leu Lys Val Ala Glu Ser Tyr Phe Asn Val Leu Leu Ser Arg Asp
 165             170             175

Thr Val Ala Ala His Ala Ala Glu Lys Glu Ala Tyr Ala Gln Gln Val

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180	185	190
Arg Gln Ala Gln Ala Leu Phe Asn Lys Gly Ala Ala Thr Ala Leu Asp 195 200 205		
Ile His Glu Ala Lys Ala Gly Tyr Asp Asn Ala Leu Ala Gln Glu Ile 210 215 220		
Ala Val Leu Ala Glu Lys Gln Thr Tyr Glu Asn Gln Leu Asn Asp Tyr 225 230 235 240		
Thr Gly Leu Asp Ser Lys Gln Ile Glu Ala Ile Asp Thr Ala Asn Leu 245 250 255		
Leu Ala Arg Tyr Leu Pro Lys Leu Glu Arg Tyr Ser Leu Asp Glu Trp 260 265 270		
Gln Arg Ile Ala Leu Ser Asn Asn His Glu Tyr Arg Met Gln Gln Leu 275 280 285		
Ala Leu Gln Ser Ser Gly Gln Ala Leu Arg Ala Ala Gln Asn Ser Arg 290 295 300		
Tyr Pro Thr Val Ser Ala His Val Gly Tyr Gln Asn Asn Leu Tyr Thr 305 310 315 320		
Ser Ser Ala Gln Asn Asn Asp Tyr His Tyr Arg Gly Lys Gly Met Ser 325 330 335		
Val Gly Val Gln Leu Asn Leu Pro Leu Tyr Thr Gly Gly Glu Leu Ser 340 345 350		
Gly Lys Ile His Glu Ala Glu Ala Gln Tyr Gly Ala Ala Glu Ala Gln 355 360 365		
Leu Thr Ala Thr Glu Arg His Ile Lys Leu Ala Val Arg Gln Ala Tyr 370 375 380		
Thr Glu Ser Gly Ala Ala Arg Tyr Gln Ile Met Ala Gln Glu Arg Val 385 390 395 400		
Leu Glu Ser Ser Arg Leu Lys Leu Lys Ser Thr Glu Thr Gly Gln Gln 405 410 415		
Tyr Gly Ile Arg Asn Arg Leu Glu Val Ile Arg Ala Arg Gln Glu Val 420 425 430		
Ala Gln Ala Glu Gln Lys Leu Ala Gln Ala Arg Tyr Lys Phe Met Leu 435 440 445		
Ala Tyr Leu Arg Leu Val Lys Glu Ser Gly Leu Gly Leu Glu Thr Val 450 455 460		
Phe Ala Glu 465		

<210> 2619  
 <211> 1428  
 <212> DNA  
 <213> Neisseria meningitidis

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 cccgcgcatt tggaaactgac cgatacgccg gtctctgccg ctccgaaatg ggcggcgcg 180  
 tttattatgg cgtttgcgct tttggctttg ttgtggtcct gggtcggcaa aatcgatatt 240  
 gtggcgggcg cttcgggcaa aacggtgtcg ggcggggcgca gcaaaacat ccagccgctg 300  
 gaaacggcgg tggttaaggg ggtacatgtg cgcgacgggc agcatgtgaa acagggagaa 360  
 acgctggcgg aactggaggc tgtgggaaca gacagcgatg tgggtgcagtc ggagcaggct 420  
 ttgcaggctg cccaattgtc caaactgcgt tatgaagcgg tattggcggc attggaaagc 480  
 cgtaccgtgc cgcataatcga tatggcgcaa gcacggtctt taggtctctc cgatgccgat 540  
 gtgcaatcgg cgcagggtgtt ggcgcagcac cagtatcagg catgggcggc gcaggatgcg 600  
 caattgcagt cggctttgcg cggccatcag gcggaattgc agtcggccaa ggcgcaggag 660  
 cagaagctgg tttcggtggg ggcgatcgag cagcagaaaa cagcagacta ccgccgtttg 720  
 cgggccgaca attttatttc ggaacatgcg tttttggagc agcagagcaa atcggtcagc 780  
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 ctgcgccagg caaacgaaca gattgaccaa taccgcggcc aaacggataa ggcaaagcag 960  
 cggcagcagc tgatgacaat acagtcgcct gcggacggca cgggtgcagga attggctacc 1020  
 tatacgggtg gcggtgtggt gcaggctgcc caaaaaatga tgggtgattgc gcccgatgac 1080  
 gacaaaaatg acgtggaagt tttggtattg aacaaagaca tcggttttgt ggaacaggga 1140  
 caggatgcgg tgggtgaagat tgagagcttt ccctatacgc gctacggtta tctgacgggc 1200  
 aaggtgaaaa gtgtcagcca tgatgcggta agccacgaac agttgggctt gggtttatac 1260  
 gcggtggtgt cgctggacaa acataccttg aatattgacg gcaaagcagt gaatctgacg 1320  
 gcgggcatga atgtcacggc ggagattaaa acgggtaaac ggcggtgctt ggattatctg 1380  
 ttaagccgcg tgcaaaccaa attggacgaa agctttaggg agcgatag 1428

<210> 2620  
 <211> 475  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2620  
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 Thr Ala Glu Glu Gln Ala Phe Leu Pro Ala His Leu Glu Leu Thr Asp  
 35 40 45  
 Thr Pro Val Ser Ala Ala Pro Lys Trp Ala Ala Arg Phe Ile Met Ala  
 50 55 60  
 Phe Ala Leu Leu Ala Leu Leu Trp Ser Trp Phe Gly Lys Ile Asp Ile  
 65 70 75 80  
 Val Ala Ala Ala Ser Gly Lys Thr Val Ser Gly Gly Arg Ser Lys Thr  
 85 90 95  
 Ile Gln Pro Leu Glu Thr Ala Val Val Lys Ala Val His Val Arg Asp

100					105					110					
Gly	Gln	His	Val	Lys	Gln	Gly	Glu	Thr	Leu	Ala	Glu	Leu	Glu	Ala	Val
		115					120					125			
Gly	Thr	Asp	Ser	Asp	Val	Val	Gln	Ser	Glu	Gln	Ala	Leu	Gln	Ala	Ala
	130					135					140				
Gln	Leu	Ser	Lys	Leu	Arg	Tyr	Glu	Ala	Val	Leu	Ala	Ala	Leu	Glu	Ser
145					150					155					160
Arg	Thr	Val	Pro	His	Ile	Asp	Met	Ala	Gln	Ala	Arg	Ser	Leu	Gly	Leu
				165					170					175	
Ser	Asp	Ala	Asp	Val	Gln	Ser	Ala	Gln	Val	Leu	Ala	Gln	His	Gln	Tyr
			180					185					190		
Gln	Ala	Trp	Ala	Ala	Gln	Asp	Ala	Gln	Leu	Gln	Ser	Ala	Leu	Arg	Gly
		195					200					205			
His	Gln	Ala	Glu	Leu	Gln	Ser	Ala	Lys	Ala	Gln	Glu	Gln	Lys	Leu	Val
	210					215					220				
Ser	Val	Gly	Ala	Ile	Glu	Gln	Gln	Lys	Thr	Ala	Asp	Tyr	Arg	Arg	Leu
225					230					235					240
Arg	Ala	Asp	Asn	Phe	Ile	Ser	Glu	His	Ala	Phe	Leu	Glu	Gln	Gln	Ser
				245					250					255	
Lys	Ser	Val	Ser	Asn	Trp	Asn	Asp	Leu	Glu	Ser	Thr	Arg	Gly	Gln	Met
			260					265					270		
Arg	Gln	Ile	Gln	Ala	Ala	Ile	Ala	Gln	Ala	Glu	Gln	Asn	Arg	Val	Leu
		275					280					285			
Asn	Thr	Gln	Asn	Leu	Lys	Arg	Asp	Thr	Leu	Asp	Ala	Leu	Arg	Gln	Ala
	290					295					300				
Asn	Glu	Gln	Ile	Asp	Gln	Tyr	Arg	Gly	Gln	Thr	Asp	Lys	Ala	Lys	Gln
305					310					315					320
Arg	Gln	Gln	Leu	Met	Thr	Ile	Gln	Ser	Pro	Ala	Asp	Gly	Thr	Val	Gln
				325					330					335	
Glu	Leu	Ala	Thr	Tyr	Thr	Val	Gly	Gly	Val	Val	Gln	Ala	Ala	Gln	Lys
			340					345					350		
Met	Met	Val	Ile	Ala	Pro	Asp	Asp	Asp	Lys	Met	Asp	Val	Glu	Val	Leu
		355					360				365				
Val	Leu	Asn	Lys	Asp	Ile	Gly	Phe	Val	Glu	Gln	Gly	Gln	Asp	Ala	Val
	370					375					380				
Val	Lys	Ile	Glu	Ser	Phe	Pro	Tyr	Thr	Arg	Tyr	Gly	Tyr	Leu	Thr	Gly
385					390					395					400
Lys	Val	Lys	Ser	Val	Ser	His	Asp	Ala	Val	Ser	His	Glu	Gln	Leu	Gly



405	410	415
Leu Val Tyr Thr Ala Val Val Ser	Leu Asp Lys His Thr	Leu Asn Ile
420	425	430
Asp Gly Lys Ala Val Asn Leu Thr	Ala Gly Met Asn Val Thr	Ala Glu
435	440	445
Ile Lys Thr Gly Lys Arg Arg Val	Leu Asp Tyr	Leu Leu Ser Pro Leu
450	455	460
Gln Thr Lys Leu Asp Glu Ser Phe Arg	Glu Arg	
465	470	475

<210> 2621  
 <211> 1305  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2621  
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 cccgcgcatt tggaactgac cgatacgccg gtctctgccg ctccgaaatg ggcggcgcggt 180  
 tttattatgg cgtttgcgct tttggctttg ttgtggtcct ggttcggcaa aatcgatatt 240  
 gtggcggcgg cttcgggcaa aacggtgtcg ggcgggcgca gcaaaacccat ccagccgctg 300  
 gaaacggtgg tgggtaaggc ggtacatgtg cgcgacgggc agcatgtgaa acagggagaa 360  
 acgctggcgg aactggaggc tgtgggaaca gacagcgatg tgggtgcagtc ggagcaggct 420  
 ttgcaggctg cccaattgtc caaactgcgt tatgaagcgg tattggcggc attggaaagc 480  
 cgtaccgtgc cgcataatga tatggcgcaa gcacggtctt taggtctctc cgatgccgat 540  
 gtgcaatcgg cgcagggtgtt ggcgcagcac cagtatcagg catgggcggc gcaggatgcg 600  
 caattgcagt cggttttgcg cggccatcag gcggaattgc agtcggccaa ggcgcaggag 660  
 cagaagctgg tttcggtggg ggcgatcgag cagcagaaaa cagcagacta ccgccgtttg 720  
 cgggccgaca attttatttc ggaacatgcg tttttggagc agcagagcaa atcggtcagc 780  
 aattggaacg atttggaag tacgcgcggt cagatgaggc agattcaggc ggccattgca 840  
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 gacaaaatgg acgtggaagt tttggtattg aacaaagaca tcggttttgt ggaacaggga 1140  
 caggatgcgg tgggtgaagat tgagagtttt ccctatacgc gctacggtta tctgacgggc 1200  
 aagggtaaaa gtgtcagcca tgatgcggtg agccacgaac agttgggctt ggtttatacg 1260  
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<210> 2622  
 <211> 435  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2622  
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 20 25 30

Thr	Ala	Glu	Glu	Gln	Ala	Phe	Leu	Pro	Ala	His	Leu	Glu	Leu	Thr	Asp	35	40	45	
Thr	Pro	Val	Ser	Ala	Ala	Pro	Lys	Trp	Ala	Ala	Arg	Phe	Ile	Met	Ala	50	55	60	
Phe	Ala	Leu	Leu	Ala	Leu	Leu	Trp	Ser	Trp	Phe	Gly	Lys	Ile	Asp	Ile	65	70	75	80
Val	Ala	Ala	Ala	Ser	Gly	Lys	Thr	Val	Ser	Gly	Gly	Arg	Ser	Lys	Thr	85	90	95	
Ile	Gln	Pro	Leu	Glu	Thr	Val	Val	Val	Lys	Ala	Val	His	Val	Arg	Asp	100	105	110	
Gly	Gln	His	Val	Lys	Gln	Gly	Glu	Thr	Leu	Ala	Glu	Leu	Glu	Ala	Val	115	120	125	
Gly	Thr	Asp	Ser	Asp	Val	Val	Gln	Ser	Glu	Gln	Ala	Leu	Gln	Ala	Ala	130	135	140	
Gln	Leu	Ser	Lys	Leu	Arg	Tyr	Glu	Ala	Val	Leu	Ala	Ala	Leu	Glu	Ser	145	150	155	160
Arg	Thr	Val	Pro	His	Ile	Asp	Met	Ala	Gln	Ala	Arg	Ser	Leu	Gly	Leu	165	170	175	
Ser	Asp	Ala	Asp	Val	Gln	Ser	Ala	Gln	Val	Leu	Ala	Gln	His	Gln	Tyr	180	185	190	
Gln	Ala	Trp	Ala	Ala	Gln	Asp	Ala	Gln	Leu	Gln	Ser	Ala	Leu	Arg	Gly	195	200	205	
His	Gln	Ala	Glu	Leu	Gln	Ser	Ala	Lys	Ala	Gln	Glu	Gln	Lys	Leu	Val	210	215	220	
Ser	Val	Gly	Ala	Ile	Glu	Gln	Gln	Lys	Thr	Ala	Asp	Tyr	Arg	Arg	Leu	225	230	235	240
Arg	Ala	Asp	Asn	Phe	Ile	Ser	Glu	His	Ala	Phe	Leu	Glu	Gln	Gln	Ser	245	250	255	
Lys	Ser	Val	Ser	Asn	Trp	Asn	Asp	Leu	Glu	Ser	Thr	Arg	Gly	Gln	Met	260	265	270	
Arg	Gln	Ile	Gln	Ala	Ala	Ile	Ala	Gln	Ala	Glu	Gln	Asn	Arg	Val	Leu	275	280	285	
Asn	Thr	Gln	Asn	Leu	Lys	Arg	Asp	Thr	Leu	Asp	Ala	Leu	Arg	Gln	Ala	290	295	300	
Asn	Glu	Gln	Ile	Asp	Gln	Tyr	Arg	Gly	Gln	Thr	Asp	Lys	Ala	Lys	Gln	305	310	315	320
Arg	Gln	Gln	Leu	Met	Thr	Ile	Gln	Ser	Pro	Ala	Asp	Gly	Thr	Val	Gln	325	330	335	

Glu Leu Ala Thr Tyr Thr Val Gly Gly Val Val Gln Ala Ala Gln Lys  
                   340                                  345                                  350  
 Met Met Val Val Ala Pro Asp Asp Asp Lys Met Asp Val Glu Val Leu  
                   355                                  360                                  365  
 Val Leu Asn Lys Asp Ile Gly Phe Val Glu Gln Gly Gln Asp Ala Val  
                   370                                  375                                  380  
 Val Lys Ile Glu Ser Phe Pro Tyr Thr Arg Tyr Gly Tyr Leu Thr Gly  
 385                                  390                                  395                                  400  
 Lys Val Lys Ser Val Ser His Asp Ala Val Ser His Glu Gln Leu Gly  
                                   405                                  410                                  415  
 Leu Val Tyr Thr Ala Val Val Ser Leu Asp Lys His Thr Leu Asn Ile  
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 Asp Gly Lys  
                   435

<210> 2623  
 <211> 930  
 <212> DNA  
 <213> Neisseria meningitidis

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 tgccgtgctcg cagtaatctc ggtattgggg gcttggtcgg tcgttgctga tgtttacggt 180  
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 aacaagtctg ccggcaatgt cgataccaca tccagaacag cccgcagggt gcaggcagta 300  
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 aaaatgacgg ttttcaaaaa cgatgagctg aacgcgtggg caatgcccgg tggaaaaatg 420  
 gcgttttata cggggatagt cgacaaactc aagctgaccg atgacgaaat tgccgccatt 480  
 atggggcatg aaatgacgca cgccctgcat gaacacggta aaaataaggt cgggcagcaa 540  
 atcttgacca atacggcggc gcagataggc acgcagatta tattagacaa aaaaccggat 600  
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 ccttatagcc gcagcttgga agaagaagcc gatgaggggg gaatgatgtt gatggcgcag 720  
 gcaggctatc atccggcggc cgctgtcagg gtttgggaaa aaatgaatca ggaaaacgac 780  
 caaacggct ttatttatgc tattacctct actcatccga caaacaatgc ccgtatagaa 840  
 aatctaaaac ggttgttgcc gaccgttatg ccggtttatg agcaaagtgt cagaaataag 900  
 gggcgcggtta ataaaaaacg tcggcggttaa 930

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 <211> 309  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2624  
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 Leu Lys Phe Asn Phe Leu Arg Ser Lys Pro Lys Tyr Glu Ile Ser Phe  
                   20                                  25                                  30

Leu Pro Ser Phe Lys Arg Ile Leu Cys Leu Ser Ala Val Ile Ser Val  
 35 40 45  
 Leu Gly Ala Cys Ala Val Val Ala Asp Val Tyr Gly His Asp Ser Ala  
 50 55 60  
 Thr Met Asn Ala Ala Ala Ala Lys Asp Tyr Met Lys Thr Val Glu Leu  
 65 70 75 80  
 Asn Lys Ser Ala Gly Asn Val Asp Thr Thr Ser Arg Thr Ala Arg Arg  
 85 90 95  
 Val Gln Ala Val Phe Arg Arg Met Leu Pro Tyr Ala Asp Ala Ala Asn  
 100 105 110  
 Asn Thr Ser His Lys Phe Asp Trp Lys Met Thr Val Phe Lys Asn Asp  
 115 120 125  
 Glu Leu Asn Ala Trp Ala Met Pro Gly Gly Lys Met Ala Phe Tyr Thr  
 130 135 140  
 Gly Ile Val Asp Lys Leu Lys Leu Thr Asp Asp Glu Ile Ala Ala Ile  
 145 150 155 160  
 Met Gly His Glu Met Thr His Ala Leu His Glu His Gly Lys Asn Lys  
 165 170 175  
 Val Gly Gln Gln Ile Leu Thr Asn Thr Ala Ala Gln Ile Gly Thr Gln  
 180 185 190  
 Ile Ile Leu Asp Lys Lys Pro Asp Thr Asn Pro Glu Leu Val Gly Leu  
 195 200 205  
 Gly Met Asp Ile Leu Gly Thr Tyr Gly Leu Thr Leu Pro Tyr Ser Arg  
 210 215 220  
 Ser Leu Glu Glu Glu Ala Asp Glu Gly Gly Met Met Leu Met Ala Gln  
 225 230 235 240  
 Ala Gly Tyr His Pro Ala Ala Ala Val Arg Val Trp Glu Lys Met Asn  
 245 250 255  
 Gln Glu Asn Asp Gln Asn Gly Phe Ile Tyr Ala Ile Thr Ser Thr His  
 260 265 270  
 Pro Thr Asn Asn Ala Arg Ile Glu Asn Leu Lys Arg Leu Leu Pro Thr  
 275 280 285  
 Val Met Pro Val Tyr Glu Gln Ser Val Arg Asn Lys Gly Arg Val Asn  
 290 295 300  
 Lys Lys Arg Arg Arg  
 305

<210> 2625  
 <211> 930  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2625  
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 tgctgtcgcg cagtaatctc ggtattgggg gcttgtagcg tcgttgctga tgtttacggg 180  
 caggattccg ccacaatgaa tgctgcggct gccgaagatt atatgaaaac gggtgagttg 240  
 aacaagtctg ccggcaatgt cgatactaca tccaaaacag cccgtagggg gcaggcagta 300  
 ttctgacgta tgttgcctta tgccgatgcg gcaaataata ccggccataa gtttgactgg 360  
 aaaatgacgg ttttcaaaaa cgatgagctg aacgcgtggg caatgcccgg cgggaaaatg 420  
 gcgtttttata cggggatagt cgataaactt aagctgaccg atggcgaaat tgccgccatt 480  
 atggggcatg aaatgacgca tgccctgcat gaacacggta aaaataaggt cgggcagaaa 540  
 atcttgacta atatggcggc gcagataggc acgcagatta tattagacaa aaaaccggac 600  
 actaatccgg aattggtcgg attgggtatg gatatttttg ggatgtacgg cattaccttg 660  
 ccttatagcc gcagcttgga agaagaagcc gatgaggggg gaatgatgtt gatggcgag 720  
 gcaggctatc atccggcagc cgctgtcagg gtttgggaaa aaatgaatca ggaaaacgac 780  
 caaacggct ttatttatgc tattacctct actcatccga caaacaatgc ccgtatagaa 840  
 aatctaaaac gggtgttgcc gaccgttatg ccggtttatg agcacagtgt tagaaataag 900  
 gggcgcggtta ataaaaaccg tcggcggttaa 930

<210> 2626  
 <211> 309  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2626  
 Met Leu Arg Cys Arg Pro Lys Ser Val Leu Asp Ser Asp Gly Ile Phe  
 1 5 10 15  
 Leu Lys Phe Asn Phe Leu Arg Ser Lys Pro Lys Tyr Glu Ile Ser Phe  
 20 25 30  
 Leu Pro Ser Phe Lys Arg Ile Leu Cys Leu Ser Ala Val Ile Ser Val  
 35 40 45  
 Leu Gly Ala Cys Thr Val Val Ala Asp Val Tyr Gly Gln Asp Ser Ala  
 50 55 60  
 Thr Met Asn Ala Ala Ala Glu Asp Tyr Met Lys Thr Val Glu Leu  
 65 70 75 80  
 Asn Lys Ser Ala Gly Asn Val Asp Thr Thr Ser Lys Thr Ala Arg Arg  
 85 90 95  
 Val Gln Ala Val Phe Arg Arg Met Leu Pro Tyr Ala Asp Ala Ala Asn  
 100 105 110  
 Asn Thr Gly His Lys Phe Asp Trp Lys Met Thr Val Phe Lys Asn Asp  
 115 120 125  
 Glu Leu Asn Ala Trp Ala Met Pro Gly Gly Lys Met Ala Phe Tyr Thr  
 130 135 140

Gly Ile Val Asp Lys Leu Lys Leu Thr Asp Gly Glu Ile Ala Ala Ile  
145 150 155 160

Met Gly His Glu Met Thr His Ala Leu His Glu His Gly Lys Asn Lys  
165 170 175

Val Gly Gln Lys Ile Leu Thr Asn Met Ala Ala Gln Ile Gly Thr Gln  
180 185 190

Ile Ile Leu Asp Lys Lys Pro Asp Thr Asn Pro Glu Leu Val Gly Leu  
195 200 205

Gly Met Asp Ile Leu Gly Met Tyr Gly Ile Thr Leu Pro Tyr Ser Arg  
210 215 220

Ser Leu Glu Glu Glu Ala Asp Glu Gly Gly Met Met Leu Met Ala Gln  
225 230 235 240

Ala Gly Tyr His Pro Ala Ala Ala Val Arg Val Trp Glu Lys Met Asn  
245 250 255

Gln Glu Asn Asp Gln Asn Gly Phe Ile Tyr Ala Ile Thr Ser Thr His  
260 265 270

Pro Thr Asn Asn Ala Arg Ile Glu Asn Leu Lys Arg Leu Leu Pro Thr  
275 280 285

Val Met Pro Val Tyr Glu His Ser Val Arg Asn Lys Gly Arg Val Asn  
290 295 300

Lys Asn Arg Arg Arg  
305

<210> 2627  
<211> 645  
<212> DNA  
<213> Neisseria gonorrhoeae

<400> 2627  
atgaagttta aacatctggt gccgctgctg ctgtcggcag tgttggtccgc gcaggcatat 60  
gccctgacgg aagggggaaga ctatcttggt ttggataaac ccattcctca agaacagccg 120  
ggaaaaattg aggtttttgga attttttcggc tttttttgcg tacattgccca tcatttcgat 180  
cctttgttat tgaaactggg caaggcattg cgtctgata cttatctgcg gacggagcac 240  
gtggtctggc ggcctgaaat gtcggtctg gcaagaatgg ctgctgcggt caagctgtcg 300  
ggtttgaaat atcaggcaaa ctctgctgtg tttaaagcag tttacgaaca aaaaatccgt 360  
ttggaaaaca gggctgttgc cgggaaatgg gctttatctc aaaaagggtt tgacggcaaa 420  
aaactgatgc gcgcctatga ttccccgaa gctgccgccg tcgcattaaa aatgcagaaa 480  
ctgacggaac aatacgggtat tgacagcacg ccgaccgtta ttgtcggcgg aaaataccgc 540  
gttatcttca ataattggctt tgatggcggc gttcatacga ttaaagaatt gggttgccaaa 600  
gtcagggaag aacgcaagcg tcagaccct gctgtacaga aatag 645

<210> 2628  
<211> 214  
<212> PRT

<213> Neisseria gonorrhoeae

<400> 2628

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Met Lys Phe Lys His Leu Leu Pro Leu Leu Leu Ser Ala Val Leu Ser
 1              5              10              15

Ala Gln Ala Tyr Ala Leu Thr Glu Gly Glu Asp Tyr Leu Val Leu Asp
      20              25              30

Lys Pro Ile Pro Gln Glu Gln Pro Gly Lys Ile Glu Val Leu Glu Phe
      35              40              45

Phe Gly Tyr Phe Cys Val His Cys His His Phe Asp Pro Leu Leu Leu
      50              55              60

Lys Leu Gly Lys Ala Leu Pro Ser Asp Thr Tyr Leu Arg Thr Glu His
      65              70              75              80

Val Val Trp Arg Pro Glu Met Leu Gly Leu Ala Arg Met Ala Ala Ala
      85              90              95

Val Lys Leu Ser Gly Leu Lys Tyr Gln Ala Asn Ser Ala Val Phe Lys
      100             105             110

Ala Val Tyr Glu Gln Lys Ile Arg Leu Glu Asn Arg Ala Val Ala Gly
      115             120             125

Lys Trp Ala Leu Ser Gln Lys Gly Phe Asp Gly Lys Lys Leu Met Arg
      130             135             140

Ala Tyr Asp Ser Pro Glu Ala Ala Ala Val Ala Leu Lys Met Gln Lys
      145             150             155             160

Leu Thr Glu Gln Tyr Gly Ile Asp Ser Thr Pro Thr Val Ile Val Gly
      165             170             175

Gly Lys Tyr Arg Val Ile Phe Asn Asn Gly Phe Asp Gly Gly Val His
      180             185             190

Thr Ile Lys Glu Leu Val Ala Lys Val Arg Glu Glu Arg Lys Arg Gln
      195             200             205

Thr Pro Ala Val Gln Lys
      210
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<210> 2629

<211> 645

<212> DNA

<213> Neisseria meningitidis

<400> 2629

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gccctgacgg aagggaaga ctatcttggt ttggataaac ccattcctca agaacagtcg 120
ggtaaaattg aggttttgga attttctcgc tatttctgcg tacattgcc a tcatttcgat 180
cctttgttat tgaaactggg caaggcattg ccgtctgatg cctatttgag gacggagcac 240
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gtggtctggc agcctgaaat gctcggtttg gctaggatgg cggctgccgt caatttgtcg 300  
 gggttgaaat atcaggcaaa cctgctgtg tttaaagcag ttacgaaca aaaaatccgc 360  
 ttggaaaaca ggtcggttgc cggaaaatgg gctttgtctc aaaaaggctt tgacggcaaa 420  
 aaactgatgc gcgcctatga ttcccccgaa gctgccgccg ccgcattaaa aatgcagaaa 480

ctgacggaac aataccgcat cgacagcacg ccgaccgtta ttgtcggcgg aaaataccgc 540  
 gttatcttca ataacggctt tgacggcggc gttcatacga ttaaagaatt gggtgcctaaa 600  
 gtcaggaag aacgcaagcg tcagaccctt gctgtacaga aatag 645

<210> 2630

<211> 214

<212> PRT

<213> Neisseria meningitidis

<400> 2630

Met Lys Leu Lys His Leu Leu Pro Leu Leu Leu Ser Ala Val Leu Ser  
 1 5 10 15

Ala Gln Ala Tyr Ala Leu Thr Glu Gly Glu Asp Tyr Leu Val Leu Asp  
 20 25 30

Lys Pro Ile Pro Gln Glu Gln Ser Gly Lys Ile Glu Val Leu Glu Phe  
 35 40 45

Phe Gly Tyr Phe Cys Val His Cys His His Phe Asp Pro Leu Leu Leu  
 50 55 60

Lys Leu Gly Lys Ala Leu Pro Ser Asp Ala Tyr Leu Arg Thr Glu His  
 65 70 75 80

Val Val Trp Gln Pro Glu Met Leu Gly Leu Ala Arg Met Ala Ala Ala  
 85 90 95

Val Asn Leu Ser Gly Leu Lys Tyr Gln Ala Asn Pro Ala Val Phe Lys  
 100 105 110

Ala Val Tyr Glu Gln Lys Ile Arg Leu Glu Asn Arg Ser Val Ala Gly  
 115 120 125

Lys Trp Ala Leu Ser Gln Lys Gly Phe Asp Gly Lys Lys Leu Met Arg  
 130 135 140

Ala Tyr Asp Ser Pro Glu Ala Ala Ala Ala Ala Leu Lys Met Gln Lys  
 145 150 155 160

Leu Thr Glu Gln Tyr Arg Ile Asp Ser Thr Pro Thr Val Ile Val Gly  
 165 170 175

Gly Lys Tyr Arg Val Ile Phe Asn Asn Gly Phe Asp Gly Gly Val His  
 180 185 190

Thr Ile Lys Glu Leu Val Ala Lys Val Arg Glu Glu Arg Lys Arg Gln  
 195 200 205

Thr Pro Ala Val Gln Lys  
 210



<210> 2631  
 <211> 645  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2631  
 atgaagctca aacatctgtt gccgctgctg ctgtcggcag tgttgctccgc gcaggcatat 60  
 gccctgacgg aaggggaaga ctatcttgtg ttggataaac ccattcctca aaaacagtcg 120  
 ggcaaaaattg aggttttggg atttttcggc tatttctgcg tacattgccg tcatttcgat 180  
 cctttgttat tgaaattggg caaggcattg ccgctctgatg cctatttaag gacggagcac 240  
 gtgggtctggc agcctgaaat gctcgggtctg gcaagaatgg ctgctgcggg caagctgtca 300  
 ggtttgaaat atcaggcaaa ccctgccgtg tttaaagcag ttacgaaca aaaaatccgc 360  
 ttggaaaaca ggctcggttg cgaaaaatgg gctttgtctc aaaaaggctt tgacggcaaa 420  
 aaactgatgc gcgcctacga ctctcctgcg gcagcggctg ctgcatcaa aatgcagcaa 480  
 ttgacggaac agtaccgcat cgacagtacg ccgaccgttg tcgtcggcgg aaaataccgc 540  
 gttatcttca ataattggctt tgacggcggg gttcatacga ttaaagaatt ggttgccaaa 600  
 gtcagggaag aacgcaagcg tcagaccct gctgtacaga aatag 645

<210> 2632  
 <211> 214  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2632  
 Met Lys Leu Lys His Leu Leu Pro Leu Leu Leu Ser Ala Val Leu Ser  
 1 5 10 15  
 Ala Gln Ala Tyr Ala Leu Thr Glu Gly Glu Asp Tyr Leu Val Leu Asp  
 20 25 30  
 Lys Pro Ile Pro Gln Lys Gln Ser Gly Lys Ile Glu Val Leu Glu Phe  
 35 40 45  
 Phe Gly Tyr Phe Cys Val His Cys His His Phe Asp Pro Leu Leu Leu  
 50 55 60  
 Lys Leu Gly Lys Ala Leu Pro Ser Asp Ala Tyr Leu Arg Thr Glu His  
 65 70 75 80  
 Val Val Trp Gln Pro Glu Met Leu Gly Leu Ala Arg Met Ala Ala Ala  
 85 90 95  
 Val Lys Leu Ser Gly Leu Lys Tyr Gln Ala Asn Pro Ala Val Phe Lys  
 100 105 110  
 Ala Val Tyr Glu Gln Lys Ile Arg Leu Glu Asn Arg Ser Val Ala Glu  
 115 120 125  
 Lys Trp Ala Leu Ser Gln Lys Gly Phe Asp Gly Lys Lys Leu Met Arg  
 130 135 140  
 Ala Tyr Asp Ser Pro Ala Ala Ala Ala Ala Ser Lys Met Gln Gln  
 145 150 155 160

Leu Thr Glu Gln Tyr Arg Ile Asp Ser Thr Pro Thr Val Val Val Gly  
                   165                                  170                                  175  
 Gly Lys Tyr Arg Val Ile Phe Asn Asn Gly Phe Asp Gly Gly Val His  
                   180                                  185                                  190  
 Thr Ile Lys Glu Leu Val Ala Lys Val Arg Glu Glu Arg Lys Arg Gln  
                   195                                  200                                  205  
 Thr Pro Ala Val Gln Lys  
                   210

<210> 2633  
 <211> 360  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 2633  
 atgaatatca aacaattgat taccgccgca ctcatgtcct cagccgcctt tgccacgcag 60  
 gcagccccgc aaaaaccggt atccgcccgc caaacgcgc aacattcagc cgtttggatc 120  
 gatgtccggt ccgaacagga atttagcgaa ggtcatttgc acaacgcggt caacatcccc 180  
 gtcgacccaaa tcgtccgccc catatacgaa gccgcgcccg acaaagacac gccgggtcaac 240  
 ctctactgcc gcagcggacg gcgtgccgaa gccgcccttc aagagctgaa aaaagcaggt 300  
 tatacaaatg ttgccaatca cggcgggttat gaagacctgc tcaaaaaagg gatgaaatga 360

<210> 2634  
 <211> 119  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 2634  
 Met Asn Ile Lys Gln Leu Ile Thr Ala Ala Leu Ile Ala Ser Ala Ala  
   1                  5                                  10                                  15  
 Phe Ala Thr Gln Ala Ala Pro Gln Lys Pro Val Ser Ala Ala Gln Thr  
                   20                                  25                                  30  
 Ala Gln His Ser Ala Val Trp Ile Asp Val Arg Ser Glu Gln Glu Phe  
                   35                                  40                                  45  
 Ser Glu Gly His Leu His Asn Ala Val Asn Ile Pro Val Asp Gln Ile  
                   50                                  55                                  60  
 Val Arg Arg Ile Tyr Glu Ala Ala Pro Asp Lys Asp Thr Pro Val Asn  
                   65                                  70                                  75                                  80  
 Leu Tyr Cys Arg Ser Gly Arg Arg Ala Glu Ala Ala Leu Gln Glu Leu  
                   85                                  90                                  95  
 Lys Lys Ala Gly Tyr Thr Asn Val Ala Asn His Gly Gly Tyr Glu Asp  
                   100                                  105                                  110  
 Leu Leu Lys Lys Gly Met Lys  
                   115

<210> 2635  
<211> 360  
<212> DNA  
<213> Neisseria meningitidis

<400> 2635  
atgaatatca aacacctgat taccgccgca ctcattgcct cagccgcctt tgccgcgcag 60  
gcagccccgc aaaaaccgt atccgccgcc caaaccgcgc aacatccggc cgtttggatc 120  
gatgtccgtt ccgaacagga atttagcgaa gggcatttgc acaacgcggt caacatcccc 180  
gtcgacaaaa tcgtccgccg catacacgaa gccgcgcccg acaaagacac gccggtcaac 240  
ctctactgcc gcagcggacg gcgtgccgaa gccgcccttc aagagctgaa aaaagcaggt 300  
tatacaaatg ttgccaatca cggcgggttat gaagacctgc tcaaaaaagg gatgaaatga 360

<210> 2636  
<211> 119  
<212> PRT  
<213> Neisseria meningitidis

<400> 2636  
Met Asn Ile Lys His Leu Ile Thr Ala Ala Leu Ile Ala Ser Ala Ala  
1 5 10 15  
Phe Ala Ala Gln Ala Ala Pro Gln Lys Pro Val Ser Ala Ala Gln Thr  
20 25 30  
Ala Gln His Pro Ala Val Trp Ile Asp Val Arg Ser Glu Gln Glu Phe  
35 40 45  
Ser Glu Gly His Leu His Asn Ala Val Asn Ile Pro Val Asp Gln Ile  
50 55 60  
Val Arg Arg Ile His Glu Ala Ala Pro Asp Lys Asp Thr Pro Val Asn  
65 70 75 80  
Leu Tyr Cys Arg Ser Gly Arg Arg Ala Glu Ala Ala Leu Gln Glu Leu  
85 90 95  
Lys Lys Ala Gly Tyr Thr Asn Val Ala Asn His Gly Gly Tyr Glu Asp  
100 105 110  
Leu Leu Lys Lys Gly Met Lys  
115

<210> 2637  
<211> 360  
<212> DNA  
<213> Neisseria meningitidis

<400> 2637  
atgaatatca aacacctgat taccgccgca ctcattgcct cagccgcctt tgccgcgcag 60  
gcagccccgc aaaaaccgt atccgccgcc caaaccgcgc aacattcagc cgtttggatc 120  
gatgtccgca gcgaacagga atttagcgaa ggtcatttgc acaacgcggt caacatcccc 180  
gtcgacaaaa tcgtccgccg catacacgaa gccgcgcccg acaaagacac gccggtcaac 240  
ctctactgcc gcagcggacg gcgtgccgaa gccgcccttc aagaactgaa aaaagcaggc 300

tatacgaatg ttgccaatca cggcggttat gaagacctgc tcaaaaaagg gatgaaatga 360

<210> 2638

<211> 119

<212> PRT

<213> *Neisseria meningitidis*

<400> 2638

Met Asn Ile Lys His Leu Ile Thr Ala Ala Leu Ile Ala Ser Ala Ala  
1 5 10 15

Phe Ala Ala Gln Ala Ala Pro Gln Lys Pro Val Ser Ala Ala Gln Thr  
20 25 30

Ala Gln His Ser Ala Val Trp Ile Asp Val Arg Ser Glu Gln Glu Phe  
35 40 45

Ser Glu Gly His Leu His Asn Ala Val Asn Ile Pro Val Asp Gln Ile  
50 55 60

Val Arg Arg Ile His Glu Ala Ala Pro Asp Lys Asp Thr Pro Val Asn  
65 70 75 80

Leu Tyr Cys Arg Ser Gly Arg Arg Ala Glu Ala Ala Leu Gln Glu Leu  
85 90 95

Lys Lys Ala Gly Tyr Thr Asn Val Ala Asn His Gly Gly Tyr Glu Asp  
100 105 110

Leu Leu Lys Lys Gly Met Lys  
115

<210> 2639

<211> 1476

<212> DNA

<213> *Neisseria gonorrhoeae*

<400> 2639

ttgataatgg ttatTTTTTTA tttttatTTT tgtgggaaga catttatgcc tgcacgaaac 60  
agatggatgc tgctgccttt attggcaagc gcggcatacg ccgaagaaac accgtgcgaa 120  
ccggatttga gaagccgtcc cgagttcagg cttcatgaag cggagggtcaa accgatcgac 180  
agggagaagg taccggggca ggtgcgggaa aaaggaaaag ttttgcagggt tgacggcgaa 240  
accctgctga aaaatcccga attgTTgtcg cgtgccatgt attccgcagt ggtctcaaac 300  
aatattgccg gtatccgcgt gattttgccg atttacctac aacaggcgcg gcaggataag 360  
atgTTggcac tttatgcaca agggattttg gcgcaggcag agggcagggt gaaggaggcg 420  
gtttccatt accgggaatt gattgccgcc caaccgcagc cgcccgcgt ccgtatgcgt 480  
ttggcgggcg cATTgtttga agacaggcag aacgaggcgg cggcagacca gttcgaccgc 540  
ctgaaaacag aagatctgcc gccgcagctt atggagcagg tcgagctgta ccgcaaggca 600  
ttgcgcgaac gcgatgcgtg gaaggtaaac ggcggtttca gcgttaccgc cgaacacaat 660  
atcaaccaag ccccgaaaca gcagcagtac ggcaattgga ctttcccgaa acagggtggac 720  
ggcacggcag tcaattaccg gttcggcgcg gagaaaaaat ggtcgctgaa aaacggctgg 780  
tacacgacgg cgggcggcga cgtgtccggc agggtttatc cggggaataa gaaattcaac 840  
gatatgacgg cagggtgtttc cggcggcatc ggttttgccg accggcgtaa agatgtcggg 900  
ctggcagtgT tccacgaacg ccgcacctac ggcaacgacg cttattctta cgccaacggc 960

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gcacgccttt atttcaaccg ttggcaaacc ccgagatggc aaacgctgtc ttcggcggag 1020
tgggggcggt tgaagaatac gcgccgggcg cgttccgaca atacccattht gcaaattttcc 1080
aattcgctgg tgttttaccg gaatgcgcgc caatattgga cgggcggttt ggattttttac 1140
cgcgagcgca accccgccga ccgtggcgac aatttcaacc gttacggcct gcgcttttgc 1200
tgggggcgagg aatggggcgg cagcggcctg tcttcgctgt tccgcctcgg cgtggcgaaa 1260
cggcattatg aaaaaccccg cttcttcagc agtttttaaag gggaaaggcg cagggataaa 1320
gaatcggaca catccttgag cctttggcac cgggcattgc atttcaaagg catcacgccg 1380
cgctgacgc tgtcgcaccg cgaaacgtgg agcaacgatg tgtttaacga atacgagaaa 1440
aacagggcgt ttgtcgagtt taacaaaacg ttctga 1476

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<210> 2640

<211> 491

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2640

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Leu Ile Met Val Ile Phe Tyr Phe Tyr Phe Cys Gly Lys Thr Phe Met
  1             5             10             15

Pro Ala Arg Asn Arg Trp Met Leu Leu Pro Leu Leu Ala Ser Ala Ala
      20             25             30

Tyr Ala Glu Glu Thr Pro Cys Glu Pro Asp Leu Arg Ser Arg Pro Glu
      35             40             45

Phe Arg Leu His Glu Ala Glu Val Lys Pro Ile Asp Arg Glu Lys Val
      50             55             60

Pro Gly Gln Val Arg Glu Lys Gly Lys Val Leu Gln Val Asp Gly Glu
      65             70             75             80

Thr Leu Leu Lys Asn Pro Glu Leu Leu Ser Arg Ala Met Tyr Ser Ala
      85             90             95

Val Val Ser Asn Asn Ile Ala Gly Ile Arg Val Ile Leu Pro Ile Tyr
     100             105             110

Leu Gln Gln Ala Arg Gln Asp Lys Met Leu Ala Leu Tyr Ala Gln Gly
     115             120             125

Ile Leu Ala Gln Ala Glu Gly Arg Val Lys Glu Ala Val Ser His Tyr
     130             135             140

Arg Glu Leu Ile Ala Ala Gln Pro Asp Ala Pro Ala Val Arg Met Arg
    145             150             155             160

Leu Ala Ala Ala Leu Phe Glu Asp Arg Gln Asn Glu Ala Ala Ala Asp
     165             170             175

Gln Phe Asp Arg Leu Lys Thr Glu Asp Leu Pro Pro Gln Leu Met Glu
     180             185             190

Gln Val Glu Leu Tyr Arg Lys Ala Leu Arg Glu Arg Asp Ala Trp Lys
     195             200             205

Val Asn Gly Gly Phe Ser Val Thr Arg Glu His Asn Ile Asn Gln Ala

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210	215	220
Pro Lys Gln Gln Gln Tyr Gly Asn Trp Thr Phe Pro Lys Gln Val Asp 225 230 235 240		
Gly Thr Ala Val Asn Tyr Arg Phe Gly Ala Glu Lys Lys Trp Ser Leu 245 250 255		
Lys Asn Gly Trp Tyr Thr Thr Ala Gly Gly Asp Val Ser Gly Arg Val 260 265 270		
Tyr Pro Gly Asn Lys Lys Phe Asn Asp Met Thr Ala Gly Val Ser Gly 275 280 285		
Gly Ile Gly Phe Ala Asp Arg Arg Lys Asp Val Gly Leu Ala Val Phe 290 295 300		
His Glu Arg Arg Thr Tyr Gly Asn Asp Ala Tyr Ser Tyr Ala Asn Gly 305 310 315 320		
Ala Arg Leu Tyr Phe Asn Arg Trp Gln Thr Pro Arg Trp Gln Thr Leu 325 330 335		
Ser Ser Ala Glu Trp Gly Arg Leu Lys Asn Thr Arg Arg Ala Arg Ser 340 345 350		
Asp Asn Thr His Leu Gln Ile Ser Asn Ser Leu Val Phe Tyr Arg Asn 355 360 365		
Ala Arg Gln Tyr Trp Thr Gly Gly Leu Asp Phe Tyr Arg Glu Arg Asn 370 375 380		
Pro Ala Asp Arg Gly Asp Asn Phe Asn Arg Tyr Gly Leu Arg Phe Ala 385 390 395 400		
Trp Gly Gln Glu Trp Gly Gly Ser Gly Leu Ser Ser Leu Phe Arg Leu 405 410 415		
Gly Val Ala Lys Arg His Tyr Glu Lys Pro Gly Phe Phe Ser Ser Phe 420 425 430		
Lys Gly Glu Arg Arg Arg Asp Lys Glu Ser Asp Thr Ser Leu Ser Leu 435 440 445		
Trp His Arg Ala Leu His Phe Lys Gly Ile Thr Pro Arg Leu Thr Leu 450 455 460		
Ser His Arg Glu Thr Trp Ser Asn Asp Val Phe Asn Glu Tyr Glu Lys 465 470 475 480		
Asn Arg Ala Phe Val Glu Phe Asn Lys Thr Phe 485 490		

<210> 2641  
 <211> 1473  
 <212> DNA

<213> Neisseria meningitidis

<400> 2641

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gatttgagaa gccgtcccga gttcaggctt catgaagcgg aggtcaaacc gatcgacagg 180
gagaaggtgc cggggcagggt gcgggaaaaa ggaaaagtgt tgcagattga cggcgaaacc 240
ctgctgaaaa atcccgaatt gttgtccgcg gcgatgtatt ccgcagtggg ctcaaacaat 300
attgccggta tccgcgttat tttgccgatt tacctacaac aggcgcagca ggataagatg 360
ttggcacttt atgcacaagg gattttggcg caggcagacg gtagggtgaa ggaggcgatt 420
tccattacc gggaattgat tgccgcccaa cccgacgcgc ccgccgtccg tatgcgtttg 480
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aaggcgga aaacctgccgc gcagctgatg gagcaggctg agctgtaccg caaggcattg 600
cgcgaaacgc atgcgtggaa ggtaaattgg ggcttcagcg tccccgcga acacaatatc 660
aaccaagccc cgaaacggca gcagtacggc aaatggactt tcccgaaaca ggtggacggc 720
acggcggtca attaccggct cggcgcgagg aaaaaatggg cgctgaaaaa cggctgggtac 780
acgacggcgg gcggcgacgt gtccggcagg gtttatccgg ggaataagaa attcaacgat 840
atgacggcag gcgtttccgg cggcatcggg tttgccgacc ggcgcaaaga tgccgggctg 900
gcagtgttcc acgaacggcg cacctacggc aacgacgctt attcttacac caacggcgca 960
cgcttttatt tcaaccgttg gcaaaccocg aaatggcaaa cgttgtcttc ggcggaagtgg 1020
gggcgtttga agaatacgcg ccgggcgcgt tccgacaata cccatttgca aatttccaat 1080
tcgctggtgt tttaccggaa tgcgcgccaa tattggatgg gcggtttgga tttttaccgc 1140
gagcgcaacc ccgcgcaccg gggcgacaat ttcaaccgtt acggcctgcg ctttgccctg 1200
gggcaggaat ggggcggcag cggcctgtct tcgctgttgc gcctcggcgc ggcgaaacgg 1260
cattatgaaa aaccgggctt tttcagcggg tttaaagggg aaaggcgag ggataaagaa 1320
ttgaacacat ccttgagcct ttggcaccgg gcattgcatt tcaaaggcat cacgccgcgc 1380
ctgacgttgt cgcaccgcga aacgcggagt aacgatgtgt tcaacgaata cgagaaaaat 1440
cgggcgtttg tcgagtttaa taaaacgttc tga 1473
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<210> 2642

<211> 490

<212> PRT

<213> Neisseria meningitidis

<400> 2642

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Leu Ile Met Val Ile Phe Tyr Phe Cys Gly Lys Thr Phe Met Pro Ala
 1             5             10             15

Arg Asn Arg Trp Met Leu Leu Leu Pro Leu Leu Ala Ser Ala Ala Tyr
 20             25             30

Ala Glu Glu Thr Pro Arg Glu Pro Asp Leu Arg Ser Arg Pro Glu Phe
 35             40             45

Arg Leu His Glu Ala Glu Val Lys Pro Ile Asp Arg Glu Lys Val Pro
 50             55             60

Gly Gln Val Arg Glu Lys Gly Lys Val Leu Gln Ile Asp Gly Glu Thr
 65             70             75             80

Leu Leu Lys Asn Pro Glu Leu Leu Ser Arg Ala Met Tyr Ser Ala Val
 85             90             95

Val Ser Asn Asn Ile Ala Gly Ile Arg Val Ile Leu Pro Ile Tyr Leu
100            105            110
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Gln	Gln	Ala	Gln	Gln	Asp	Lys	Met	Leu	Ala	Leu	Tyr	Ala	Gln	Gly	Ile
		115					120					125			
Leu	Ala	Gln	Ala	Asp	Gly	Arg	Val	Lys	Glu	Ala	Ile	Ser	His	Tyr	Arg
	130					135					140				
Glu	Leu	Ile	Ala	Ala	Gln	Pro	Asp	Ala	Pro	Ala	Val	Arg	Met	Arg	Leu
145					150					155					160
Ala	Ala	Ala	Leu	Phe	Glu	Asn	Arg	Gln	Asn	Glu	Ala	Ala	Ala	Asp	Gln
				165					170					175	
Phe	Asp	Arg	Leu	Lys	Ala	Glu	Asn	Leu	Pro	Pro	Gln	Leu	Met	Glu	Gln
			180					185					190		
Val	Glu	Leu	Tyr	Arg	Lys	Ala	Leu	Arg	Glu	Arg	Asp	Ala	Trp	Lys	Val
		195					200					205			
Asn	Gly	Gly	Phe	Ser	Val	Thr	Arg	Glu	His	Asn	Ile	Asn	Gln	Ala	Pro
	210					215					220				
Lys	Arg	Gln	Gln	Tyr	Gly	Lys	Trp	Thr	Phe	Pro	Lys	Gln	Val	Asp	Gly
225					230					235					240
Thr	Ala	Val	Asn	Tyr	Arg	Leu	Gly	Ala	Glu	Lys	Lys	Trp	Ser	Leu	Lys
				245					250					255	
Asn	Gly	Trp	Tyr	Thr	Thr	Ala	Gly	Gly	Asp	Val	Ser	Gly	Arg	Val	Tyr
			260					265					270		
Pro	Gly	Asn	Lys	Lys	Phe	Asn	Asp	Met	Thr	Ala	Gly	Val	Ser	Gly	Gly
		275					280					285			
Ile	Gly	Phe	Ala	Asp	Arg	Arg	Lys	Asp	Ala	Gly	Leu	Ala	Val	Phe	His
	290					295					300				
Glu	Arg	Arg	Thr	Tyr	Gly	Asn	Asp	Ala	Tyr	Ser	Tyr	Thr	Asn	Gly	Ala
305					310					315					320
Arg	Leu	Tyr	Phe	Asn	Arg	Trp	Gln	Thr	Pro	Lys	Trp	Gln	Thr	Leu	Ser
				325					330					335	
Ser	Ala	Glu	Trp	Gly	Arg	Leu	Lys	Asn	Thr	Arg	Arg	Ala	Arg	Ser	Asp
			340					345					350		
Asn	Thr	His	Leu	Gln	Ile	Ser	Asn	Ser	Leu	Val	Phe	Tyr	Arg	Asn	Ala
		355					360					365			
Arg	Gln	Tyr	Trp	Met	Gly	Gly	Leu	Asp	Phe	Tyr	Arg	Glu	Arg	Asn	Pro
		370				375					380				
Ala	Asp	Arg	Gly	Asp	Asn	Phe	Asn	Arg	Tyr	Gly	Leu	Arg	Phe	Ala	Trp
385					390					395					400
Gly	Gln	Glu	Trp	Gly	Gly	Ser	Gly	Leu	Ser	Ser	Leu	Leu	Arg	Leu	Gly
				405					410					415	



Ala Ala Lys Arg His Tyr Glu Lys Pro Gly Phe Phe Ser Gly Phe Lys  
420 425 430

Gly Glu Arg Arg Arg Asp Lys Glu Leu Asn Thr Ser Leu Ser Leu Trp  
435 440 445

His Arg Ala Leu His Phe Lys Gly Ile Thr Pro Arg Leu Thr Leu Ser  
450 455 460

His Arg Glu Thr Arg Ser Asn Asp Val Phe Asn Glu Tyr Glu Lys Asn  
465 470 475 480

Arg Ala Phe Val Glu Phe Asn Lys Thr Phe  
485 490

<210> 2643

<211> 1473

<212> DNA

<213> Neisseria meningitidis

<400> 2643

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gatttgagaa gccgtcccga gttcaggctt catgaagcgg aggtcaaacc aatcgacagg 180
gagaaggtag cggggcagggt gcgggaaaaa ggaaaagttt tgcagattga cggcgaaacc 240
ctgctgaaaa atcccgaatt gctgtcccgc gcgatgtatt ccgcagtggt ctcaaacaat 300
attgccggta tccgcgttat tttgccgatt tacctacaac aggcgcagca ggataagatg 360
ttggcacttt atgcacaagg gatTTTtggcg caggcagacg gtagggtgaa ggaggcgatt 420
tcccattacc gggaattgat tgtcgcccaa cccgacgcgc ccgccgtccg tatgCGTTtG 480
gcggcggcag tgTTtGaaaa caggcagaac gaggcggcgg cagaccagtt cgaccgcctg 540
aaggcggaag acctgccgcc gcagctgatg gagcaggtcg agctgtaccg caaggcattg 600
cgcgaacgcg atgCGtggaa ggtaaattggc ggcttcagcg ttaccgcgca acacaatatc 660
aaccaagccc cgaaacggca gcagtacggc aaatggactt tcccgaaaca ggtggacggc 720
acggcggtca attaccggct cggcgcgagg aaaaaatggt cgctgaaaaa cggctggtag 780
acgacggcgg gcggcgacgt gtccggcagg gtttatccgg ggaataagaa attcaacgat 840
atgacggcag gcgtttccgg cggcatcggt tttgccgacc ggcgcaaaga tgccgggctg 900
gcagtgttcc acgaacgcgc cacctacggc aacgacgctt attcttacac caacggcgca 960
cgcttttatt tcaaccgttg gcaaaccocg aaatggcaaa cgTTgtcttc ggcgagtggt 1020
ggcggtttga agaatacgcg ccgggcgcgt tccgacaata cccatttgca aatttccaat 1080
tcgctggtgt tttaccggaa tgcgcgcaa tattggatgg gcggtttgga tttttaccgc 1140
gagcgcaacc ccgccgaccg gggcgacaat ttcaaccgtt acggcctgcg ctttgcctgg 1200
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cattatgaaa aacccggtt tttcagcggg tttaaagggg aaaggcgag ggataaagaa 1320
ttgaacacat ccttgagcct ttggcaccgg gcattgcatt tcaaaggcat cagccgcgc 1380
ctgacgttgt cgcaccgcga aacgcggagt aacgatgtgt tcaacgaata cgagaaaaat 1440
cggcggtttg tcgagtttaa taaaacgttc tga 1473
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<210> 2644

<211> 490

<212> PRT

<213> Neisseria meningitidis

<400> 2644

Leu Ile Met Val Ile Phe Tyr Phe Cys Gly Lys Thr Phe Met Pro Ala

1	5	10	15
Arg Asn Arg Trp Met Leu Leu Leu Pro Leu Leu Ala Ser Ala Ala Tyr	20	25	30
Ala Glu Glu Thr Pro Arg Glu Pro Asp Leu Arg Ser Arg Pro Glu Phe	35	40	45
Arg Leu His Glu Ala Glu Val Lys Pro Ile Asp Arg Glu Lys Val Pro	50	55	60
Gly Gln Val Arg Glu Lys Gly Lys Val Leu Gln Ile Asp Gly Glu Thr	65	70	75
Leu Leu Lys Asn Pro Glu Leu Leu Ser Arg Ala Met Tyr Ser Ala Val	85	90	95
Val Ser Asn Asn Ile Ala Gly Ile Arg Val Ile Leu Pro Ile Tyr Leu	100	105	110
Gln Gln Ala Gln Gln Asp Lys Met Leu Ala Leu Tyr Ala Gln Gly Ile	115	120	125
Leu Ala Gln Ala Asp Gly Arg Val Lys Glu Ala Ile Ser His Tyr Arg	130	135	140
Glu Leu Ile Val Ala Gln Pro Asp Ala Pro Ala Val Arg Met Arg Leu	145	150	155
Ala Ala Ala Leu Phe Glu Asn Arg Gln Asn Glu Ala Ala Ala Asp Gln	165	170	175
Phe Asp Arg Leu Lys Ala Glu Asn Leu Pro Pro Gln Leu Met Glu Gln	180	185	190
Val Glu Leu Tyr Arg Lys Ala Leu Arg Glu Arg Asp Ala Trp Lys Val	195	200	205
Asn Gly Gly Phe Ser Val Thr Arg Glu His Asn Ile Asn Gln Ala Pro	210	215	220
Lys Arg Gln Gln Tyr Gly Lys Trp Thr Phe Pro Lys Gln Val Asp Gly	225	230	235
Thr Ala Val Asn Tyr Arg Leu Gly Ala Glu Lys Lys Trp Ser Leu Lys	245	250	255
Asn Gly Trp Tyr Thr Thr Ala Gly Gly Asp Val Ser Gly Arg Val Tyr	260	265	270
Pro Gly Asn Lys Lys Phe Asn Asp Met Thr Ala Gly Val Ser Gly Gly	275	280	285
Ile Gly Phe Ala Asp Arg Arg Lys Asp Ala Gly Leu Ala Val Phe His	290	295	300

Glu Arg Arg Thr Tyr Gly Asn Asp Ala Tyr Ser Tyr Thr Asn Gly Ala  
 305 310 315 320  
 Arg Leu Tyr Phe Asn Arg Trp Gln Thr Pro Lys Trp Gln Thr Leu Ser  
 325 330 335  
 Ser Ala Glu Trp Gly Arg Leu Lys Asn Thr Arg Arg Ala Arg Ser Asp  
 340 345 350  
 Asn Thr His Leu Gln Ile Ser Asn Ser Leu Val Phe Tyr Arg Asn Ala  
 355 360 365  
 Arg Gln Tyr Trp Met Gly Gly Leu Asp Phe Tyr Arg Glu Arg Asn Pro  
 370 375 380  
 Ala Asp Arg Gly Asp Asn Phe Asn Arg Tyr Gly Leu Arg Phe Ala Trp  
 385 390 395 400  
 Gly Gln Glu Trp Gly Gly Ser Gly Leu Ser Ser Leu Leu Arg Leu Gly  
 405 410 415  
 Ala Ala Lys Arg His Tyr Glu Lys Pro Gly Phe Phe Ser Gly Phe Lys  
 420 425 430  
 Gly Glu Arg Arg Arg Asp Lys Glu Leu Asn Thr Ser Leu Ser Leu Trp  
 435 440 445  
 His Arg Ala Leu His Phe Lys Gly Ile Thr Pro Arg Leu Thr Leu Ser  
 450 455 460  
 His Arg Glu Thr Arg Ser Asn Asp Val Phe Asn Glu Tyr Glu Lys Asn  
 465 470 475 480  
 Arg Ala Phe Val Glu Phe Asn Lys Thr Phe  
 485 490

<210> 2645  
 <211> 561  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 2645  
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 accgataaaa tcggacgggc aagtaccgtt ttcaacatgt tgggcaaaaa cgaccgtatc 120  
 gaagtgaag gattcgacga tcccgcggtt caaggggttg cctgttatat ttctgatgca 180  
 aaaaaaggcg gcttgaagga aatggtcaat ttggaagagg acgcgtccga cgcacgggtt 240  
 tcgtgcgttc agacggcatc ttcgatttct ttgacgaaa ccgccgtgcg caaaccgaaa 300  
 gaagttttca agcgcggtac gggcttcgcg ttcaagagcc ggcagattgt ccgttattac 360  
 gaccccaaac gcaaagcctt cgcctatttg gtttacagcg ataaaatcgt ccaaggatcg 420  
 ccgaaaaatt ccttaagcgc ggtttcctgt ttcggcagcg gcataccgca aaccgacggg 480  
 gtgcaagccg atacttccgg caaactgctt gccggcgcct gcattatttc caaccgcgata 540  
 aaaaatcccc acaaacgctg a 561

<210> 2646  
 <211> 186

<212> PRT  
<213> Neisseria gonorrhoeae

<400> 2646

Met Asn Arg Leu Leu Leu Ser Ala Ala Val Leu Pro Thr Ala Cys  
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Gly Ser Gly Glu Thr Asp Lys Ile Gly Arg Ala Ser Thr Val Phe Asn  
20 25 30

Met Leu Gly Lys Asn Asp Arg Ile Glu Val Glu Gly Phe Asp Asp Pro  
35 40 45

Asp Val Gln Gly Val Ala Cys Tyr Ile Ser Tyr Ala Lys Lys Gly Gly  
50 55 60

Leu Lys Glu Met Val Asn Leu Glu Glu Asp Ala Ser Asp Ala Ser Val  
65 70 75 80

Ser Cys Val Gln Thr Ala Ser Ser Ile Ser Phe Asp Glu Thr Ala Val  
85 90 95

Arg Lys Pro Lys Glu Val Phe Lys Arg Gly Thr Gly Phe Ala Phe Lys  
100 105 110

Ser Arg Gln Ile Val Arg Tyr Tyr Asp Pro Lys Arg Lys Ala Phe Ala  
115 120 125

Tyr Leu Val Tyr Ser Asp Lys Ile Val Gln Gly Ser Pro Lys Asn Ser  
130 135 140

Leu Ser Ala Val Ser Cys Phe Gly Ser Gly Ile Pro Gln Thr Asp Gly  
145 150 155 160

Val Gln Ala Asp Thr Ser Gly Lys Leu Leu Ala Gly Ala Cys Ile Ile  
165 170 175

Ser Asn Pro Ile Lys Asn Pro Asp Lys Arg  
180 185

<210> 2647  
<211> 561  
<212> DNA  
<213> Neisseria meningitidis

<400> 2647

atgaacagac tgctactgct gtctgccgcc gtccctgctga ctgcctgcgg cagcggcgaa 60  
accgataaaa tcggacgggc aagtaccgtt ttcaacatac tgggcaaaaa cgaccgtatc 120  
gaagtggaag gattcgacga tcccgcggtt caaggggttg cctgttatat ttcgtatgca 180  
aaaaaaggcg gcttgaagga aatgggtcaat ttggaagagg acgcgtccga cgcacgggtt 240  
tcgtgcgttc agacggcatc ttcgatttct tttgacgaaa ccgccgtgcg caaaccgaaa 300  
gaagttttca aacacgggtgc gagcttcgcg ttcaagagcc ggcagattgt ccgttattac 360  
gaccccaaac gcaaaacctt cgcctatttg gtgtacagcg ataaaatcat ccaaggctcg 420  
ccgaaaaatt ccttaagcgc ggtttcctgt ttcggcggcg gcataccgaa aaccgatggg 480  
gtgcaagccg atacttccgg caacctgctt gccggcgccct gcatgatttc caaccgata 540  
gaaaatctcg acaaacgctg a 561

<210> 2648  
<211> 186  
<212> PRT  
<213> Neisseria meningitidis

<400> 2648  
Met Asn Arg Leu Leu Leu Leu Ser Ala Ala Val Leu Leu Thr Ala Cys  
1 5 10 15  
Gly Ser Gly Glu Thr Asp Lys Ile Gly Arg Ala Ser Thr Val Phe Asn  
20 25 30  
Ile Leu Gly Lys Asn Asp Arg Ile Glu Val Glu Gly Phe Asp Asp Pro  
35 40 45  
Asp Val Gln Gly Val Ala Cys Tyr Ile Ser Tyr Ala Lys Lys Gly Gly  
50 55 60  
Leu Lys Glu Met Val Asn Leu Glu Glu Asp Ala Ser Asp Ala Ser Val  
65 70 75 80  
Ser Cys Val Gln Thr Ala Ser Ser Ile Ser Phe Asp Glu Thr Ala Val  
85 90 95  
Arg Lys Pro Lys Glu Val Phe Lys His Gly Ala Ser Phe Ala Phe Lys  
100 105 110  
Ser Arg Gln Ile Val Arg Tyr Tyr Asp Pro Lys Arg Lys Thr Phe Ala  
115 120 125  
Tyr Leu Val Tyr Ser Asp Lys Ile Ile Gln Gly Ser Pro Lys Asn Ser  
130 135 140  
Leu Ser Ala Val Ser Cys Phe Gly Gly Gly Ile Pro Gln Thr Asp Gly  
145 150 155 160  
Val Gln Ala Asp Thr Ser Gly Asn Leu Leu Ala Gly Ala Cys Met Ile  
165 170 175  
Ser Asn Pro Ile Glu Asn Leu Asp Lys Arg  
180 185

<210> 2649  
<211> 561  
<212> DNA  
<213> Neisseria meningitidis

<400> 2649  
atgaacagac tgctactgct gtctgccgcc gtctgtctga ctgcctgcgg cagcggcgaa 60  
accgataaaa tcggacgggc aagtaccgtt ttcaacatac tgggcaaaaa cgaccgtatc 120  
gaagtggaag gattcgacga tcccgcggtt caaggggttg cctgttatat ttcgtatgca 180  
aaaaaaggcg gcttgaagga aatgggtcaat ttggaagagg acgcgtccga cgcacggtt 240  
tcgtgcgttc agacggcatc ttcgatttct ttgacgaaa ccgccgtgcg caaaccgaaa 300  
gaagttttca aacacggtgc gagcttcgcg ttcaagagcc ggcagattgt ccgttattac 360

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gaccccaaac gcaaaacctt cgcctatttg gtgtacagcg ataaaatcat ccaaggctcg 420
ccgaaaaatt ccttaagcgc ggtttcctgt ttcggcggcg gcataccgca aaccgatggg 480
gtgcaagccg atacttccgg caacctgctt gccggcgcct gcatgatttc caaccgata 540
gaaaatcccg acaaacgctg a                                     561

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<210> 2650  
 <211> 186  
 <212> PRT  
 <213> *Neisseria meningitidis*

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<400> 2650
Met Asn Arg Leu Leu Leu Leu Ser Ala Ala Val Leu Leu Thr Ala Cys
  1                      5                      10                   15

Gly Ser Gly Glu Thr Asp Lys Ile Gly Arg Ala Ser Thr Val Phe Asn
                20                      25                   30

Ile Leu Gly Lys Asn Asp Arg Ile Glu Val Glu Gly Phe Asp Asp Pro
          35                      40                   45

Asp Val Gln Gly Val Ala Cys Tyr Ile Ser Tyr Ala Lys Lys Gly Gly
  50                      55                   60

Leu Lys Glu Met Val Asn Leu Glu Glu Asp Ala Ser Asp Ala Ser Val
  65                      70                   75                   80

Ser Cys Val Gln Thr Ala Ser Ser Ile Ser Phe Asp Glu Thr Ala Val
                85                      90                   95

Arg Lys Pro Lys Glu Val Phe Lys His Gly Ala Ser Phe Ala Phe Lys
          100                      105                   110

Ser Arg Gln Ile Val Arg Tyr Tyr Asp Pro Lys Arg Lys Thr Phe Ala
          115                      120                   125

Tyr Leu Val Tyr Ser Asp Lys Ile Ile Gln Gly Ser Pro Lys Asn Ser
          130                      135                   140

Leu Ser Ala Val Ser Cys Phe Gly Gly Gly Ile Pro Gln Thr Asp Gly
          145                      150                   155                   160

Val Gln Ala Asp Thr Ser Gly Asn Leu Leu Ala Gly Ala Cys Met Ile
                165                      170                   175

Ser Asn Pro Ile Glu Asn Pro Asp Lys Arg
          180                      185

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<210> 2651  
 <211> 2103  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

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<400> 2651
atggatttat tatcggtttt ccacaaatac cgtctgaaat atgcggtggc ggtgctgacg 60

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aacatccgca gccgcctcca acaaagcatt gcccataccc accggaaaaat ctcgtttgat 180
gcgatatatac ggcgcaggct tctgccccgc ccgaccgtca tcctgaaaaa cctgaccatt 240
accgaaccgc acggcgggcg ggtcgccgtt tccgtcaaag aaaccaaata cggattgagc 300
tgaaaaaacc tgtggtcgga tcggatacag gttgaaaaat gggtggtttc gggtcgggat 360
cttgccctga cgcgcgacag aaacggcgct tggaacatcc aagacctgtt cgacggcgcg 420
aaacactccg cctcagtcaa ccgcattatc gtcgaaaaa gcaccgtccg cctcaatttc 480
ctgcagcaac agcttatcct gaaggaaatc agcctcaacc tgcaatcccc cgattcgctg 540
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agcagggggc tgttcctttc agacggcatc ggcacgcccg aaatctcacc gttccatttt 660
gaagcttcca cttcgctgga cggacacggc atcaccattt ccaccaccgg cagcccttct 720
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aaaaccggca cggtaaacgg cacgtttacc gccggcgggcg aatatgcccg atgggacggg 900
tcgttcaaac tcgacaaaag caacctgcac tccggcatcg ccaacatcgg caacgccgaa 960
atctccggca gcttcaaaac accgcgcctt caaaccaatt tctccctcgg ctgcgcgttg 1020
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accgtcgacc gcctgccgca accccgtttc atcagccggc tcgacggttc gctgtccata 1140
ccgaatctgc aaaattggaa tgccgaatta aacggcacat tcgaccgcca acccgttgcc 1200
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aaattaaacc tcgcccccta tcttgacgaa tttcggcaac aaaacggcaa aatattcccc 1320
gacatcctcg gcaggctgtc cggcaacgtc gaggcacacc tcaaaatcgg cagcatccaa 1380
ctccccggct tgcaactgga cgatatggaa acctacctcc acgccgacaa agaccatata 1440
gcgctcagcc gtttcaagtc agggctttac ggcgccata ccgaaggcgg catcagcatc 1500
gccaacaccc gtcccgccac ttaccgcctg caacagaatg caagcaacat ccaaatacaa 1560
ccgctgctgc aagacctgtt cggcttccac agcttcagcg gcaacggcga tgcggtcata 1620
gacctgaccg caagcggcga aaaccgcaaa cagcttatcc gctcgtgca aggcagcctg 1680
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accagcaacg gctataccaa tctggatacg caggaattgt ctgaagatgt ccttatccgc 1920
aacgccgtcc atccgaaaaa caaaccgatt cccctgaaaa tcaccggtag ggtggacaag 1980
ccgtccatta ccgtcgatta cggcaggctg accggcggca tcaattcgcg caaagagaaa 2040
cagaaaatcc tcgaagacac cctgctggaa caatggcagt ggctcaaacc taaagaaccg 2100
taa
2103

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<210> 2652

<211> 700

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2652

```

Met Asp Leu Leu Ser Val Phe His Lys Tyr Arg Leu Lys Tyr Ala Val
  1                      5                      10                      15

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Ala Val Leu Thr Met Leu Leu Leu Ala Ala Val Gly Leu His Ala Ser
                20                      25                      30

```

```

Val Tyr Arg Thr Phe Thr Pro Glu Asn Ile Arg Ser Arg Leu Gln Gln
    35                      40                      45

```

```

Ser Ile Ala His Thr His Arg Lys Ile Ser Phe Asp Ala Asp Ile Arg
    50                      55                      60

```

```

Arg Arg Leu Leu Pro Arg Pro Thr Val Ile Leu Lys Asn Leu Thr Ile
    65                      70                      75                      80

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Thr	Glu	Pro	Asp	Gly	Gly	Arg	Val	Ala	Val	Ser	Val	Lys	Glu	Thr	Lys	85	90	95	
Ile	Gly	Leu	Ser	Trp	Lys	Asn	Leu	Trp	Ser	Asp	Arg	Ile	Gln	Val	Glu	100	105	110	
Lys	Trp	Val	Val	Ser	Gly	Ala	Asp	Leu	Ala	Leu	Thr	Arg	Asp	Arg	Asn	115	120	125	
Gly	Ala	Trp	Asn	Ile	Gln	Asp	Leu	Phe	Asp	Gly	Ala	Lys	His	Ser	Ala	130	135	140	
Ser	Val	Asn	Arg	Ile	Ile	Val	Glu	Asn	Ser	Thr	Val	Arg	Leu	Asn	Phe	145	150	155	160
Leu	Gln	Gln	Gln	Leu	Ile	Leu	Lys	Glu	Ile	Ser	Leu	Asn	Leu	Gln	Ser	165	170	175	
Pro	Asp	Ser	Ser	Gly	Gln	Gln	Phe	Glu	Ser	Ser	Gly	Ile	Leu	Val	Trp	180	185	190	
Arg	Lys	Leu	Ser	Val	Pro	Trp	Lys	Ser	Arg	Gly	Leu	Phe	Leu	Ser	Asp	195	200	205	
Gly	Ile	Gly	Thr	Pro	Glu	Ile	Ser	Pro	Phe	His	Phe	Glu	Ala	Ser	Thr	210	215	220	
Ser	Leu	Asp	Gly	His	Gly	Ile	Thr	Ile	Ser	Thr	Thr	Gly	Ser	Pro	Ser	225	230	235	240
Val	Arg	Phe	Asn	Ala	Gly	Gly	Ala	Asp	Ala	Ala	Gly	Leu	Gly	Leu	Arg	245	250	255	
Ala	Asp	Thr	Ser	Phe	Arg	Asn	Leu	His	Leu	Thr	Ala	Gln	Ile	Pro	Ala	260	265	270	
Leu	Ala	Leu	Lys	Asn	Asn	Ser	Ile	Lys	Thr	Gly	Thr	Val	Asn	Gly	Thr	275	280	285	
Phe	Thr	Ala	Gly	Gly	Glu	Tyr	Ala	Arg	Trp	Asp	Gly	Ser	Phe	Lys	Leu	290	295	300	
Asp	Lys	Ala	Asn	Leu	His	Ser	Gly	Ile	Ala	Asn	Ile	Gly	Asn	Ala	Glu	305	310	315	320
Ile	Ser	Gly	Ser	Phe	Lys	Thr	Pro	Arg	Leu	Gln	Thr	Asn	Phe	Ser	Leu	325	330	335	
Gly	Ser	Pro	Leu	Val	Trp	Ser	Arg	Asp	Asn	Gly	Leu	Asp	Ala	Pro	Arg	340	345	350	
Leu	His	Ile	Ser	Thr	Leu	Gln	Asp	Thr	Val	Asp	Arg	Leu	Pro	Gln	Pro	355	360	365	
Arg	Phe	Ile	Ser	Arg	Leu	Asp	Gly	Ser	Leu	Ser	Ile	Pro	Asn	Leu	Gln	370	375	380	



Asn Trp Asn Ala Glu Leu Asn Gly Thr Phe Asp Arg Gln Pro Val Ala	385	390	395	400
Ala Lys Phe Lys Tyr Thr Arg Glu Gly Ala Pro His Leu Glu Ala Ala	405	410	415	
Ala Ala Leu Gln Lys Leu Asn Leu Ala Pro Tyr Leu Asp Glu Phe Arg	420	425	430	
Gln Gln Asn Gly Lys Ile Phe Pro Asp Ile Leu Gly Arg Leu Ser Gly	435	440	445	
Asn Val Glu Ala His Leu Lys Ile Gly Ser Ile Gln Leu Pro Gly Leu	450	455	460	
Gln Leu Asp Asp Met Glu Thr Tyr Leu His Ala Asp Lys Asp His Ile	465	470	475	480
Ala Leu Ser Arg Phe Lys Ser Gly Leu Tyr Gly Gly His Thr Glu Gly	485	490	495	
Gly Ile Ser Ile Ala Asn Thr Arg Pro Ala Thr Tyr Arg Leu Gln Gln	500	505	510	
Asn Ala Ser Asn Ile Gln Ile Gln Pro Leu Leu Gln Asp Leu Phe Gly	515	520	525	
Phe His Ser Phe Ser Gly Asn Gly Asp Ala Val Ile Asp Leu Thr Ala	530	535	540	
Ser Gly Glu Asn Arg Lys Gln Leu Ile Arg Ser Leu Gln Gly Ser Leu	545	550	555	560
Ser Leu Asn Ile Ser Asn Gly Ala Trp His Gly Ile Asp Met Asp Ser	565	570	575	
Ile Leu Lys Asn Gly Leu Ser Gly Lys Ile Ser Gly Ser Thr Pro Phe	580	585	590	
Tyr Arg Phe Thr Leu Asn Ser Glu Ile Ser Asp Gly Ile Ser Arg His	595	600	605	
Ile Asp Thr Glu Leu Phe Ser Asp Ser Leu Tyr Val Thr Ser Asn Gly	610	615	620	
Tyr Thr Asn Leu Asp Thr Gln Glu Leu Ser Glu Asp Val Leu Ile Arg	625	630	635	640
Asn Ala Val His Pro Lys Asn Lys Pro Ile Pro Leu Lys Ile Thr Gly	645	650	655	
Thr Val Asp Lys Pro Ser Ile Thr Val Asp Tyr Gly Arg Leu Thr Gly	660	665	670	
Gly Ile Asn Ser Arg Lys Glu Lys Gln Lys Ile Leu Glu Asp Thr Leu	675	680	685	

Leu Glu Gln Trp Gln Trp Leu Lys Pro Lys Glu Pro  
690 695 700

<210> 2653  
<211> 2114  
<212> DNA  
<213> Neisseria meningitidis

<400> 2653  
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aacatccgca gccgcctaca acaaagcatt gcacacacac accggaaaaat ctcgtttgat 180  
gcggacattc agcgcaggct cctgccccgg cggaccgtca tcctgaaaaa cctgaccatt 240  
accgaacccg gcggcgacca gactgccgtt tccgtccaag aaac'caaat cggattgagc 300  
tgga'aaaacc tgtggtcgga tcagatacag attgaaaaat ggggtggtttc gagtgcggaa 360  
cttgccctga cgcgcgacgg gaaaggtgtt tggaacatcc aagacctgat cgacagccaa 420  
aaacgccaa'g cctcagtcaa ccgcattatc gtcgaaaaaca gcaccgtccg cctcaatttc 480  
ctgcaggaac agcttatcct gaaggaaatc aacctcaacc tgcaatcccc cgattcgctc 540  
gggcagccgt ttgaaagttc gggcatactg gtttggggaa agctgtccgt cccgtggaaa 600  
agcagggggc tgttcctttc aaacggcatc ggcccgcccg aaatctcacc gttccatttt 660  
gaagcttcca cttcgctgga cggacacggc attaccattt ccaccaccgg cagcccttct 720  
gtccgcttca acgccggcgg agcggatgcc gccggcctcg gctgctgtgc agacacttcc 780  
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tcgttcaa'ac tcgacaaagc caacctgcac tccggcatcg ccaacatcgg caacgccgaa 960  
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gcgaaattca gatacacaca tgaagacgca ccgcactctg aagccgccgt cgcactgcaa 1260  
aaattgaacc tgacccccta tcttgacgac gtgcggcaac aaaacggcaa aatatttccc 1320  
gacaccctcg ccaagctgtc cggcgacatc gaggcgcacc tgaaaatcgg aaaagtccaa 1380  
cttcccggcc tgcaactgga cgatatggaa acctacctcc acgccgacaa aggccatatc 1440  
gcgtcagcc gtttcaagtc agggctttac ggcgccata ccgaaggcgg catcagcatc 1500  
gccaacaccc gtcccgccac ttaccgcctg caacagaatg caagcaacat ccaaatccaa 1560  
ccgctgctgc aagacctgtt cggcttccac agcttcagcg gcaacggcga cgcgggtcatc 1620  
gacctgaccg cgggcggcga aaccggaaaa gagcttatcc gctcgcttca gggcagcctg 1680  
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ctcaacagcg aaatttcaga cggcatcagc cgccacatcg ataccgaact cttctccgac 1860  
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gtccttatcc gcaacgccgt ccatccgaaa aacaaaccga ttcccctgaa aatcaccggc 1980  
acggtggaca aaccgtccat taccgtcgat tacggcaggc tgaccggcgg catcaattcg 2040  
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cctaaagaac cgta 2114

<210> 2654  
<211> 704  
<212> PRT  
<213> Neisseria meningitidis

<400> 2654  
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Ala	Val	Leu	Thr	Ile	Leu	Leu	Leu	Ala	Ala	Val	Gly	Leu	His	Ala	Ser	20	25	30
Val	Tyr	Arg	Thr	Phe	Thr	Pro	Glu	Asn	Ile	Arg	Ser	Arg	Leu	Gln	Gln	35	40	45
Ser	Ile	Ala	His	Thr	His	Arg	Lys	Ile	Ser	Phe	Asp	Ala	Asp	Ile	Gln	50	55	60
Arg	Arg	Leu	Leu	Pro	Arg	Pro	Thr	Val	Ile	Leu	Lys	Asn	Leu	Thr	Ile	65	70	75
Thr	Glu	Pro	Gly	Gly	Asp	Gln	Thr	Ala	Val	Ser	Val	Gln	Glu	Thr	Lys	85	90	95
Ile	Gly	Leu	Ser	Trp	Lys	Asn	Leu	Trp	Ser	Asp	Gln	Ile	Gln	Ile	Glu	100	105	110
Lys	Trp	Val	Val	Ser	Ser	Ala	Glu	Leu	Ala	Leu	Thr	Arg	Asp	Gly	Lys	115	120	125
Gly	Val	Trp	Asn	Ile	Gln	Asp	Leu	Ile	Asp	Ser	Gln	Lys	Arg	Gln	Ala	130	135	140
Ser	Val	Asn	Arg	Ile	Ile	Val	Glu	Asn	Ser	Thr	Val	Arg	Leu	Asn	Phe	145	150	155
Leu	Gln	Glu	Gln	Leu	Ile	Leu	Lys	Glu	Ile	Asn	Leu	Asn	Leu	Gln	Ser	165	170	175
Pro	Asp	Ser	Ser	Gly	Gln	Pro	Phe	Glu	Ser	Ser	Gly	Ile	Leu	Val	Trp	180	185	190
Gly	Lys	Leu	Ser	Val	Pro	Trp	Lys	Ser	Arg	Gly	Leu	Phe	Leu	Ser	Asn	195	200	205
Gly	Ile	Gly	Pro	Pro	Glu	Ile	Ser	Pro	Phe	His	Phe	Glu	Ala	Ser	Thr	210	215	220
Ser	Leu	Asp	Gly	His	Gly	Ile	Thr	Ile	Ser	Thr	Thr	Gly	Ser	Pro	Ser	225	230	235
Val	Arg	Phe	Asn	Ala	Gly	Gly	Ala	Asp	Ala	Ala	Gly	Leu	Gly	Leu	Arg	245	250	255
Ala	Asp	Thr	Ser	Phe	Arg	Asn	Leu	His	Leu	Thr	Ala	Gln	Ile	Pro	Ala	260	265	270
Leu	Ala	Leu	Arg	Asn	Asn	Ser	Ile	Lys	Ile	Glu	Thr	Val	Asn	Gly	Ala	275	280	285
Phe	Thr	Ala	Gly	Gly	Glu	Tyr	Ala	Arg	Trp	Asp	Gly	Ser	Phe	Lys	Leu	290	295	300
Asp	Lys	Ala	Asn	Leu	His	Ser	Gly	Ile	Ala	Asn	Ile	Gly	Asn	Ala	Glu	305	310	315
																		320

Ile Ser Gly Ser Phe Lys Thr Pro Arg His Gln Thr Asn Phe Ser Leu  
 325 330 335  
 Asn Ser Pro Leu Val Trp Thr Glu Asn Lys Gly Leu Asp Ala Pro Arg  
 340 345 350  
 Leu Tyr Val Ser Thr Leu Gln Asp Thr Val Asn Arg Leu Pro Gln Pro  
 355 360 365  
 Arg Phe Ile Ser Arg Leu Asp Gly Ser Leu Ser Val Pro Asn Leu Gln  
 370 375 380  
 Asn Trp Asn Ala Glu Leu Asn Gly Thr Phe Asp Arg Gln Thr Val Ala  
 385 390 395 400  
 Ala Lys Phe Arg Tyr Thr His Glu Asp Ala Pro His Leu Glu Ala Ala  
 405 410 415  
 Val Ala Leu Gln Lys Leu Asn Leu Thr Pro Tyr Leu Asp Asp Val Arg  
 420 425 430  
 Gln Gln Asn Gly Lys Ile Phe Pro Asp Thr Leu Ala Lys Leu Ser Gly  
 435 440 445  
 Asp Ile Glu Ala His Leu Lys Ile Gly Lys Val Gln Leu Pro Gly Leu  
 450 455 460  
 Gln Leu Asp Asp Met Glu Thr Tyr Leu His Ala Asp Lys Gly His Ile  
 465 470 475 480  
 Ala Leu Ser Arg Phe Lys Ser Gly Leu Tyr Gly Gly His Thr Glu Gly  
 485 490 495  
 Gly Ile Ser Ile Ala Asn Thr Arg Pro Ala Thr Tyr Arg Leu Gln Gln  
 500 505 510  
 Asn Ala Ser Asn Ile Gln Ile Gln Pro Leu Leu Gln Asp Leu Phe Gly  
 515 520 525  
 Phe His Ser Phe Ser Gly Asn Gly Asp Ala Val Ile Asp Leu Thr Ala  
 530 535 540  
 Gly Gly Glu Thr Arg Lys Glu Leu Ile Arg Ser Leu Gln Gly Ser Leu  
 545 550 555 560  
 Ser Leu Asn Ile Ser Asn Gly Ala Trp His Gly Ile Asp Met Asp Asn  
 565 570 575  
 Ile Leu Lys Asn Gly Ile Ser Gly Lys Thr Ala Asp Asn Ala Ala Pro  
 580 585 590  
 Ser Thr Pro Phe His Arg Phe Thr Leu Asn Ser Glu Ile Ser Asp Gly  
 595 600 605  
 Ile Ser Arg His Ile Asp Thr Glu Leu Phe Ser Asp Ser Leu Tyr Val  
 610 615 620

Thr Ser Asn Gly Tyr Thr Asn Leu Asp Thr Gln Glu Leu Ser Glu Asp  
625 630 635 640

Val Leu Ile Arg Asn Ala Val His Pro Lys Asn Lys Pro Ile Pro Leu  
645 650 655

Lys Ile Thr Gly Thr Val Asp Lys Pro Ser Ile Thr Val Asp Tyr Gly  
660 665 670

Arg Leu Thr Gly Gly Ile Asn Ser Arg Lys Glu Lys Gln Lys Ile Leu  
675 680 685

Glu Asp Thr Leu Leu Glu Gln Trp Gln Trp Leu Lys Pro Lys Glu Pro  
690 695 700

<210> 2655

<211> 2115

<212> DNA

<213> Neisseria meningitidis

<400> 2655

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aacatccgaa gccgcctcca acaaagcatt gcccatacgc accggaaaat ctcgtttgat 180
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accgtcaacc gcctgcgcga acccgtttc atcagccggc tcgacggttc gctgtccgta 1140
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ctcaacagcg aaatttcaga cggcatcagc cgccacatcg ataccgaact cttctccgac 1860
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agcctctatg ttaccagcaa cggctatacc aatctggata cgcaggaatt gtctgaagat 1920
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acgggtggaca aaccgtccat taccgtcgat tacggcaggc tgaccggcgg catcaattcg 2040
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cctaaagaac cgtaa 2115

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<210> 2656  
 <211> 704  
 <212> PRT  
 <213> Neisseria meningitidis

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<400> 2656
Met Asp Leu Leu Ser Val Phe His Lys Tyr Arg Leu Lys Tyr Ala Val
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Ala Val Leu Thr Ile Leu Leu Leu Ala Ala Ile Gly Leu His Ala Ser
      20             25             30

Val Tyr Arg Ile Phe Thr Pro Glu Asn Ile Arg Ser Arg Leu Gln Gln
      35             40             45

Ser Ile Ala His Thr His Arg Lys Ile Ser Phe Asp Ala Asp Ile Gln
      50             55             60

Arg Arg Leu Leu Pro Arg Pro Thr Val Ile Leu Lys Asn Leu Thr Ile
      65             70             75             80

Thr Glu Pro Gly Gly Asp Arg Thr Ala Val Ser Val Gln Glu Thr Lys
      85             90             95

Ile Gly Leu Ser Trp Lys Asn Leu Trp Ser Asp Gln Ile Gln Ile Glu
      100            105            110

Lys Trp Val Val Ser Ser Ala Glu Leu Ala Leu Thr Arg Asp Gly Lys
      115            120            125

Gly Val Trp Asn Ile Gln Asp Leu Ile Asp Ser Gln Lys Arg Gln Ala
      130            135            140

Ser Val Asn Arg Ile Ile Val Glu Asn Ser Thr Val Arg Leu Asn Phe
      145            150            155            160

Leu Gln Glu Gln Leu Ile Leu Lys Glu Ile Asn Leu Asn Leu Gln Ser
      165            170            175

Pro Asp Ser Ser Gly Gln Pro Phe Glu Ser Ser Gly Ile Leu Val Trp
      180            185            190

Gly Lys Leu Ser Val Pro Trp Lys Ser Arg Gly Leu Phe Leu Ser Asp
      195            200            205

Gly Ile Gly Thr Pro Lys Ile Ser Pro Phe His Phe Glu Ala Ser Thr
      210            215            220

Ser Leu Asp Gly His Gly Ile Thr Ile Ser Thr Thr Gly Ser Pro Ser
      225            230            235            240

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Val Arg Phe Asn Ala Gly Gly Ala Asp Ala Ala Gly Leu Gly Leu Arg  
245 250 255  
Ala Asp Thr Ser Phe Arg Asn Leu His Leu Thr Ala Gln Ile Pro Thr  
260 265 270  
Leu Ala Leu Arg Asn Asn Ser Ile Lys Ile Glu Thr Val Asn Gly Ala  
275 280 285  
Phe Thr Ala Gly Gly Glu Tyr Ala Gln Trp Asp Gly Ser Phe Lys Leu  
290 295 300  
Asp Lys Ala Asn Leu His Ser Gly Ile Ala Asn Ile Gly Asn Ala Glu  
305 310 315 320  
Ile Ser Gly Ser Phe Lys Thr Pro Arg His Gln Thr Asn Phe Ser Leu  
325 330 335  
Asn Ser Pro Leu Val Trp Thr Glu Asn Lys Gly Leu Asp Ala Pro Arg  
340 345 350  
Leu Tyr Val Ser Thr Leu Gln Asp Thr Val Asn Arg Leu Pro Gln Pro  
355 360 365  
Arg Phe Ile Ser Arg Leu Asp Gly Ser Leu Ser Val Pro Asn Leu Gln  
370 375 380  
Asn Trp Asn Ala Glu Leu Asn Gly Thr Phe Asp Arg Gln Thr Val Ala  
385 390 395 400  
Ala Lys Phe Arg Tyr Thr His Glu Asp Ala Pro His Leu Glu Ala Ala  
405 410 415  
Val Ala Leu Gln Lys Leu Asn Leu Thr Pro Tyr Leu Asp Asp Val Arg  
420 425 430  
Gln Gln Asn Gly Lys Ile Phe Pro Asp Thr Leu Ala Lys Leu Ser Gly  
435 440 445  
Asp Ile Glu Ala His Leu Lys Ile Gly Lys Val Gln Leu Pro Gly Leu  
450 455 460  
Gln Leu Asp Asp Met Glu Thr Tyr Leu His Ala Asp Lys Gly His Ile  
465 470 475 480  
Ala Leu Ser Arg Phe Lys Ser Gly Leu Tyr Gly Gly His Thr Glu Gly  
485 490 495  
Gly Ile Ser Ile Ala Asn Thr Arg Pro Ala Thr Tyr Arg Leu Gln Gln  
500 505 510  
Asn Ala Ser Asn Ile Gln Ile Gln Pro Leu Leu Gln Asp Leu Phe Gly  
515 520 525  
Phe His Ser Phe Ser Gly Asn Gly Asp Ala Val Ile Asp Leu Thr Ala  
530 535 540

Gly Gly Glu Thr Arg Lys Glu Leu Ile Arg Ser Leu Gln Gly Ser Leu  
 545 550 555 560  
 Ser Leu Asn Ile Ser Asn Gly Ala Trp His Gly Ile Asp Met Asp Asn  
 565 570 575  
 Ile Leu Lys Asn Gly Ile Ser Gly Lys Thr Ala Asp Asn Ala Ala Pro  
 580 585 590  
 Ser Thr Pro Phe His Arg Phe Thr Leu Asn Ser Glu Ile Ser Asp Gly  
 595 600 605  
 Ile Ser Arg His Ile Asp Thr Glu Leu Phe Ser Asp Ser Leu Tyr Val  
 610 615 620  
 Thr Ser Asn Gly Tyr Thr Asn Leu Asp Thr Gln Glu Leu Ser Glu Asp  
 625 630 635 640  
 Val Leu Ile Arg Asn Ala Val His Pro Lys Asn Lys Pro Ile Pro Leu  
 645 650 655  
 Lys Ile Thr Gly Thr Val Asp Lys Pro Ser Ile Thr Val Asp Tyr Gly  
 660 665 670  
 Arg Leu Thr Gly Gly Ile Asn Ser Arg Lys Glu Lys Gln Lys Ile Leu  
 675 680 685  
 Glu Asp Thr Leu Leu Glu Gln Trp Gln Trp Leu Lys Pro Lys Glu Pro  
 690 695 700

<210> 2657  
 <211> 897  
 <212> DNA  
 <213> Neisseria gonorrhoeae

<400> 2657  
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 ggcgaaatga tcgaaatcgt ccgccttgcc gatacgggtgt ttcaccggaa tcatgcgcac 180  
 cactgcggaa tcgattttcg gcgcgggatc gaacgattcg ggcggcacgt caatcagcag 240  
 ctccatatcg aaaaaatatt gcagcatcac acccaagcga ccgtagtcgt tgcttttcgg 300  
 cgcggcaacc atgcgctcga ccacttcttt ttgcaacata aagtgcatac cggcgacatc 360  
 gtccgccacc tccgcaggtt tgaacaaaag cggcgtggag atgttatacg gcaggttgcc 420  
 gacgattttc tttttgcctg agatgccgtt gaaatcaaac tgcaacacgt cgccttcgtg 480  
 aatcaccagt ttatccgcaa acggcagcgt tttcagacgg catacgatgt cgcggtcgat 540  
 ttcgacaacg tgcaggcggg tcagcttttt cgccaaaggt tcggtattg ccgccaaacc 600  
 cgggcccatt tcaatcacga catcatccgc ctgcgggcgc acggcggtga caatatcgcc 660  
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 catcgtgttt cctcttcggt tgaaaccccg ccctttaggg cggcaggatc agactctgtt 780  
 tgggcggggc gtaaccctt ccaaatcagg acgacacata gggcgggtgct ttatgtgtcg 840  
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<210> 2658

<211> 297

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2658

Val Phe Gly Thr Val Leu Arg Thr Asp Ala Asp Cys Leu Gln Ile Ile  
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Val Val Gly Lys Phe Phe Gln Val Val Ala Tyr Gly Phe Ala Ala Leu  
20 25 30

Ala Glu Gly Glu Phe His Gln Phe Gly Glu Met Ile Glu Ile Val Arg  
35 40 45

Leu Ala Asp Thr Val Phe His Arg Asn His Ala His His Cys Gly Ile  
50 55 60

Asp Phe Arg Arg Gly Ile Glu Arg Phe Gly Arg His Val Asn Gln Gln  
65 70 75 80

Leu His Ile Glu Lys Ile Leu Gln His His Thr Gln Ala Thr Val Val  
85 90 95

Val Ala Phe Arg Arg Gly Asn His Ala Leu Asp His Phe Phe Leu Gln  
100 105 110

His Lys Val His Ile Gly Asp Ile Val Arg His Leu Arg Gln Phe Glu  
115 120 125

Gln Lys Arg Arg Gly Asp Val Ile Arg Gln Val Ala Asp Asp Phe Leu  
130 135 140

Phe Ala Asp Ala Val Glu Ile Lys Leu Gln His Val Ala Phe Val Asn  
145 150 155 160

His Gln Phe Ile Arg Lys Arg Gln Arg Phe Gln Thr Ala Tyr Asp Val  
165 170 175

Ala Val Asp Phe Asp Asn Val Gln Ala Val Gln Leu Phe Arg Gln Arg  
180 185 190

Phe Gly Asn Cys Arg Gln Thr Arg Ala Asp Phe Asn His Asp Ile Ile  
195 200 205

Arg Leu Arg Ala His Gly Val Asp Asn Ile Ala Asp Asn Pro Arg Val  
210 215 220

Leu Gln Lys Ile Leu Pro Glu Thr Leu Ala Gly Phe Val Phe Phe His  
225 230 235 240

Arg Val Ser Ser Ser Val Glu Thr Pro Pro Phe Arg Ala Ala Gly Ser  
245 250 255

Asp Ser Val Trp Ala Gly Arg Asn Pro Phe Gln Ile Arg Thr Thr His  
260 265 270

Arg Ala Val Leu Tyr Val Ser Ser Cys Val Leu Glu His Lys Cys Val  
 275 280 285

Tyr Ser Ile Arg Leu Met Ser Ala Leu  
 290 295

<210> 2659  
 <211> 897  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2659  
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 cgcggaacc atacgctcga ccacttcttt ttgcagcata aagtgcataat cgacgacatc 360  
 gtccgccacc tccgccagct tgaacaaaag cgggtgtggaa atgttgtacg ggaggttgcc 420  
 gacgattttc tttttgcctg cgatgccgtt gaaatcaaac tgcaatacat cgccttcgtg 480  
 aatcaccagt ttatccgcaa acggcagcgt tttcagacgg catacgaatg cgcggtcgat 540  
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 gataatccgc gtgtcctgca aaaaattctg ccgaaaacgc ttgcgggctt tgtgttcttt 720  
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 tgggaggggc gtaactcttt ccaaatacagg atggcacata gggcggtgct ttatgtgtcg 840  
 tcctgtgtgt tgaaacataa atgtgtttac agtatccggt tgatgtcggc attgtaa 897

<210> 2660  
 <211> 298  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2660  
 Met Phe Gly Ala Val Leu Arg Ile Asp Ala Asp Cys Leu Gln Ile Ile  
 1 5 10 15  
 Val Ala Cys Lys Leu Phe Gln Ile Val Ala Tyr Gly Phe Ala Ala Leu  
 20 25 30  
 Val Glu Gly Glu Phe His Glu Phe Gly Lys Met Leu Glu Ile Val Arg  
 35 40 45  
 Leu Ala Asp Ala Val Phe His Arg Asn His Thr Asp Asp Gly Gly Ile  
 50 55 60  
 His Phe Arg Arg Arg Val Glu Arg Phe Gly Arg Tyr Val Asn Gln His  
 65 70 75 80  
 Phe His Ile Glu Lys Ile Leu Gln His His Ala Gln Ala Ala Val Val  
 85 90 95  
 Val Ala Phe Arg Arg Gly Asn His Thr Leu Asp His Phe Phe Leu Gln  
 100 105 110

His Lys Val His Ile Asp Asp Ile Val Arg His Leu Arg Gln Leu Glu  
 115 120 125  
 Gln Lys Arg Cys Gly Asn Val Val Arg Glu Val Ala Asp Asp Phe Leu  
 130 135 140  
 Phe Ala Cys Asp Ala Val Glu Ile Lys Leu Gln Tyr Ile Ala Phe Val  
 145 150 155 160  
 Asn His Gln Phe Ile Arg Lys Arg Gln Arg Phe Gln Thr Ala Tyr Asp  
 165 170 175  
 Val Ala Val Asp Phe Asp Asn Val Gln Ala Val Gln Leu Phe Arg Gln  
 180 185 190  
 Arg Phe Gly Asn Arg Arg Gln Thr Arg Ala Asp Phe Asn His Asp Ile  
 195 200 205  
 Ile Arg Leu Arg Ala His Gly Val Asp Asn Ile Ala Asp Asn Pro Arg  
 210 215 220  
 Val Leu Gln Lys Ile Leu Pro Glu Thr Leu Ala Gly Phe Val Phe Phe  
 225 230 235 240  
 His Arg Val Ser Phe Ser Val Glu Thr Pro Pro Phe Arg Ala Val Glu  
 245 250 255  
 Ser Asp Ser Ile Trp Glu Gly Arg Asn Ser Phe Gln Ile Arg Met Ala  
 260 265 270  
 His Arg Ala Val Leu Tyr Val Ser Ser Cys Val Leu Lys His Lys Cys  
 275 280 285  
 Val Tyr Ser Ile Arg Leu Met Ser Ala Leu  
 290 295

<210> 2661  
 <211> 897  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 2661  
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 ctctttcaga ttgttgcgta tggttttgcg gcgttggtgg aaggcgagtt tcacgagttt 120  
 ggcgaaatgc tcgaaatcgt ccgccttgcc gatacgggtgt ttcaccggaa tcatgcggaac 180  
  
 gacggccgaa tccactttcg ggcgggggtc gaacgattcg ggcggcacgt caatcagcat 240  
 ttccatatcg aagaaatatt gcagcatcac gcccaa'gcg ccgtagtcgt tgcttttcgg 300  
 cgcgcaacc atacgatcga ccacttcttt ttgcagcata aagtgcataat cgacgacatc 360  
 gtccgccacc tccgccagct tgaacaaaag cggcggtggaa atgttgtagg gcaggttgcc 420  
 gacgattttc tttttgcctg cgatgccgtt gaaatcaaac tgcaatacat cgccttcgtg 480  
 aatcaccagt ttatccgcaa acggcagcgt tttcagacgg catacgaatgt cgcggtcgat 540  
 ttcgacaacg tgcaggcggg tcagcttttt cgccaaaggt tcggtaatcg ccgccaacc 600  
 cggaccgatt tcaatcacga catcatccgc ctgcggggcg acggcggtga caatatcgct 660  
 gataatccgc gtgtcctgca aaaaattctg cccgaaacgc ttgcgggctt tgtgttcttt 720

catcgtgttt ccttttcggt tgaaaccccg cccttttaggg cggtagaatc agactctatt 780  
 tgggaggggc gtaactcctt ccaaatacagg acggcacata gggcggtgct ttatgtgtcg 840  
 tcctgtgtgt tgaaacataa atgtgtttac agtatccggt tgatgtcggc attgtaa 897

<210> 2662

<211> 298

<212> PRT

<213> Neisseria meningitidis

<400> 2662

Met	Phe	Gly	Ala	Val	Leu	Arg	Ile	Asp	Ala	Asp	Cys	Leu	Gln	Ile	Ile	1	5	10	15
Val	Ala	Cys	Lys	Leu	Phe	Gln	Ile	Val	Ala	Tyr	Gly	Phe	Ala	Ala	Leu	20	25	30	
Val	Glu	Gly	Glu	Phe	His	Glu	Phe	Gly	Glu	Met	Leu	Glu	Ile	Val	Arg	35	40	45	
Leu	Ala	Asp	Thr	Val	Phe	His	Arg	Asn	His	Ala	Asp	Asp	Gly	Arg	Ile	50	55	60	
His	Phe	Arg	Arg	Gly	Val	Glu	Arg	Phe	Gly	Arg	His	Val	Asn	Gln	His	65	70	75	80
Phe	His	Ile	Glu	Glu	Ile	Leu	Gln	His	His	Ala	Gln	Ala	Ala	Val	Val	85	90	95	
Val	Ala	Phe	Arg	Arg	Gly	Asn	His	Thr	Ile	Asp	His	Phe	Phe	Leu	Gln	100	105	110	
His	Lys	Val	His	Ile	Asp	Asp	Ile	Val	Arg	His	Leu	Arg	Gln	Leu	Glu	115	120	125	
Gln	Lys	Arg	Arg	Gly	Asn	Val	Val	Gly	Gln	Val	Ala	Asp	Asp	Phe	Leu	130	135	140	
Phe	Ala	Cys	Asp	Ala	Val	Glu	Ile	Lys	Leu	Gln	Tyr	Ile	Ala	Phe	Val	145	150	155	160
Asn	His	Gln	Phe	Ile	Arg	Lys	Arg	Gln	Arg	Phe	Gln	Thr	Ala	Tyr	Asp	165	170	175	
Val	Ala	Val	Asp	Phe	Asp	Asn	Val	Gln	Ala	Val	Gln	Leu	Phe	Arg	Gln	180	185	190	
Arg	Phe	Gly	Asn	Arg	Arg	Gln	Thr	Arg	Thr	Asp	Phe	Asn	His	Asp	Ile	195	200	205	
Ile	Arg	Leu	Arg	Ala	His	Gly	Val	Asp	Asn	Ile	Ala	Asp	Asn	Pro	Arg	210	215	220	
Val	Leu	Gln	Lys	Ile	Leu	Pro	Glu	Thr	Leu	Ala	Gly	Phe	Val	Phe	Phe	225	230	235	240
His	Arg	Val	Ser	Phe	Ser	Val	Glu	Thr	Pro	Pro	Phe	Arg	Ala	Val	Glu				

	245		250		255
Ser Asp Ser	Ile Trp Glu Gly Arg Asn Ser Phe Gln Ile Arg Thr Ala				
	260		265		270
His Arg Ala Val Leu Tyr Val Ser Ser Cys Val Leu Lys His Lys Cys					
	275		280		285
Val Tyr Ser Ile Arg Leu Met Ser Ala Leu					
	290		295		

<210> 2663  
 <211> 783  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2663  
 atgggattgg gtgcaacgac ttttgtcggg tcgggtgcta taggcggagg tctgtgcagt 60  
 accgggattg gctgtgcggc cggtggactt attgcaacgg caggatatgac cggtgggttat 120  
 acacaggcct cagaaggaag ccggcaattg tttggcactt accagtccga ttttggtaaa 180  
 aaagtgtgcc tatctttggg tacaccaata gaatacgaat cgccgttagt atctgatgcg 240  
 aaaaatctag ccgtatgggg attggaaacg ctgattacgc gcaaattggg aaacttggca 300  
 acgggtgtga aaacttcctt gactccgaaa actgctgacg tacagcgaaa tatcctgtcc 360  
 caatccgaag tcggtatcaa gtggggcaag gggattgaag gacagggaaat gccttggggag 420  
 gattatgtcg gtaagggcct gtctgccaat gcaagggtac ctaaaaattt taaaacattt 480  
 gattatatttg atcgtggtac aggcacggca atcagtgcc aactcttgga tacgcaaact 540  
 acggcacgcc tgtccaaacc cgaacagctt tacagtacca tgaaagggtg catcgataag 600  
 acggcaaatt tcaaaagtta tgaattatca gaagtaccgt taagggcaga catgatcaaa 660  
 cagcgcgaaa tccatctggc cataccgcga caaactaata aggagcaaag attgcagttg 720  
 caacgtgtgg tagagtatgg caaaagtcaa aacattacag tcaaaattac ggagatcgaa 780  
 taa 783

<210> 2664  
 <211> 260  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2664  
 Met Gly Leu Gly Ala Thr Thr Phe Val Gly Ser Gly Ala Ile Gly Gly  
 1 5 10 15  
 Gly Leu Cys Ser Thr Gly Ile Gly Cys Ala Ala Gly Gly Leu Ile Ala  
 20 25 30  
 Thr Ala Gly Met Thr Gly Gly Tyr Thr Gln Ala Ser Glu Gly Ser Arg  
 35 40 45  
 Gln Leu Phe Gly Thr Tyr Gln Ser Asp Phe Gly Lys Lys Val Val Leu  
 50 55 60  
 Ser Leu Gly Thr Pro Ile Glu Tyr Glu Ser Pro Leu Val Ser Asp Ala  
 65 70 75 80  
 Lys Asn Leu Ala Val Trp Gly Leu Glu Thr Leu Ile Thr Arg Lys Leu  
 85 90 95

Gly Asn Leu Ala Thr Gly Val Lys Thr Ser Leu Thr Pro Lys Thr Ala  
 100 105 110  
 Asp Val Gln Arg Asn Ile Leu Ser Gln Ser Glu Val Gly Ile Lys Trp  
 115 120 125  
 Gly Lys Gly Ile Glu Gly Gln Gly Met Pro Trp Glu Asp Tyr Val Gly  
 130 135 140  
 Lys Gly Leu Ser Ala Asn Ala Arg Leu Pro Lys Asn Phe Lys Thr Phe  
 145 150 155 160  
 Asp Tyr Phe Asp Arg Gly Thr Gly Thr Ala Ile Ser Ala Lys Thr Leu  
 165 170 175  
 Asp Thr Gln Thr Thr Ala Arg Leu Ser Lys Pro Glu Gln Leu Tyr Ser  
 180 185 190  
 Thr Met Lys Gly Tyr Ile Asp Lys Thr Ala Asn Phe Lys Ser Tyr Glu  
 195 200 205  
 Leu Ser Glu Val Pro Leu Arg Ala Asp Met Ile Lys Gln Arg Glu Ile  
 210 215 220  
 His Leu Ala Ile Pro Ala Gln Thr Asn Lys Glu Gln Arg Leu Gln Leu  
 225 230 235 240  
 Gln Arg Val Val Glu Tyr Gly Lys Ser Gln Asn Ile Thr Val Lys Ile  
 245 250 255  
 Thr Glu Ile Glu  
 260

<210> 2665  
 <211> 714  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 2665  
 atgaagacca aattaccgct ttttatcatt tggctgtctg tgtctgcctc ctgtgcttcc 60  
 gttttacccg ttccggaggg cagccgaacc gaaatgccga cacaggaaaa tgcttcagac 120  
 ggcattccct atcccggttc cactctgcaa gaccgttttg actatctgga aggcaaaatc 180  
 gtccggctgt cgaacgaagt ggaaatgtta aacgggaaaag tcaaagcatt ggagcatacg 240  
 aaaatacacc cttccggcag gacatacgtc caaaaactcg acgaccgcaa attgaaagag 300  
 cattaacctca ataccgaagg cggcagcgca tccgcacata ccgtcgaaaac cgcacaaaaac 360  
 ctctacaatc aggcactcaa acactatcaa aacggcaggt tttctgccgc agccgccttg 420  
 ttgaaggggg cggacggcgg agacggcggc agcatcgcg aacgcagtat gtacctgttg 480  
 ctgcaaagca gggcgcgat ggggaactgt gaatctgtca tcgaaatcgg agggcgttac 540  
 gccaacgggt tcaaagacag cccaaccgcg cccgaagtca tattcaaaat cggcgaatgc 600  
 caatacaggc ttcagcaaaa agacattgca agggcgactt ggcgcagcct gatacagacc 660  
 tatcccgga gcccgggcggc aaaacgcgcc gccgcagccg tacgcaaacg atag 714

<210> 2666

<211> 237  
 <212> PRT  
 <213> Neisseria gonorrhoeae

<400> 2666

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Met Lys Thr Lys Leu Pro Leu Phe Ile Ile Trp Leu Ser Val Ser Ala
  1           5           10           15

Ser Cys Ala Ser Val Leu Pro Val Pro Glu Gly Ser Arg Thr Glu Met
      20           25           30

Pro Thr Gln Glu Asn Ala Ser Asp Gly Ile Pro Tyr Pro Val Pro Thr
      35           40           45

Leu Gln Asp Arg Leu Asp Tyr Leu Glu Gly Lys Ile Val Arg Leu Ser
      50           55           60

Asn Glu Val Glu Met Leu Asn Gly Lys Val Lys Ala Leu Glu His Thr
      65           70           75           80

Lys Ile His Pro Ser Gly Arg Thr Tyr Val Gln Lys Leu Asp Asp Arg
      85           90           95

Lys Leu Lys Glu His Tyr Leu Asn Thr Glu Gly Gly Ser Ala Ser Ala
      100          105          110

His Thr Val Glu Thr Ala Gln Asn Leu Tyr Asn Gln Ala Leu Lys His
      115          120          125

Tyr Gln Asn Gly Arg Phe Ser Ala Ala Ala Ala Leu Leu Lys Gly Ala
      130          135          140

Asp Gly Gly Asp Gly Gly Ser Ile Ala Gln Arg Ser Met Tyr Leu Leu
      145          150          155          160

Leu Gln Ser Arg Ala Arg Met Gly Asn Cys Glu Ser Val Ile Glu Ile
      165          170          175

Gly Gly Arg Tyr Ala Asn Arg Phe Lys Asp Ser Pro Thr Ala Pro Glu
      180          185          190

Val Ile Phe Lys Ile Gly Glu Cys Gln Tyr Arg Leu Gln Gln Lys Asp
      195          200          205

Ile Ala Arg Ala Thr Trp Arg Ser Leu Ile Gln Thr Tyr Pro Gly Ser
      210          215          220

Pro Ala Ala Lys Arg Ala Ala Ala Ala Val Arg Lys Arg
      225          230          235
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<210> 2667  
 <211> 714  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2667

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atgaagatca aattaccgct ttttatcatt tggctgtctg tgtccgcctc ctgtgcttcc 60
gtttcaccgc ttccggcagg cagccaaacc gaaatgtcga cacgggaaaa tgcttcagac 120
ggcattccct atcccgttcc gaccttgcaa gaccgtttgg actatctgga aggcaaaatc 180
gtccggctgt cgaacgaagt ggaaacctta aacggcaaag tcaaagcact ggaacacgca 240
aaaacacatt cttccggcag ggcatacgtc caaaaactcg acgaccgcaa gttgaaagag 300
cattacctca ataccgaagg cggcagcgca tccgcacata ctgtcgaaac cgcacaaaac 360
ctctacaatc aggcaactca aactataaaa agcggcaagt tttctgccgc tgcctccctg 420
ttgaaaggcg cggacggagg cgacggcggc agcatcgcg aacgcagtat gtacctgttg 480
ctgcaaagca gggcgcgat gggcaactgc gaatccgtca tcgaaatcgg agggcggttac 540
gccaaccgtt tcaaagacag cccaaccgcg cctgaagcca tggtcaaaat cggcgaatgc 600
caatacaggc ttcagcaaaa agacattgca agggcgactt ggcgagcct gatacagacc 660
tatcccgga gcccggcggc aaaacgcgcc gccgcagccg tgcgcaaacg atag 714
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<210> 2668

<211> 237

<212> PRT

<213> *Neisseria meningitidis*

<400> 2668

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Met Lys Ile Lys Leu Pro Leu Phe Ile Ile Trp Leu Ser Val Ser Ala
  1             5             10             15

Ser Cys Ala Ser Val Ser Pro Val Pro Ala Gly Ser Gln Thr Glu Met
      20             25             30

Ser Thr Arg Glu Asn Ala Ser Asp Gly Ile Pro Tyr Pro Val Pro Thr
      35             40             45

Leu Gln Asp Arg Leu Asp Tyr Leu Glu Gly Lys Ile Val Arg Leu Ser
      50             55             60

Asn Glu Val Glu Thr Leu Asn Gly Lys Val Lys Ala Leu Glu His Ala
      65             70             75             80

Lys Thr His Ser Ser Gly Arg Ala Tyr Val Gln Lys Leu Asp Asp Arg
      85             90             95

Lys Leu Lys Glu His Tyr Leu Asn Thr Glu Gly Gly Ser Ala Ser Ala
      100            105            110

His Thr Val Glu Thr Ala Gln Asn Leu Tyr Asn Gln Ala Leu Lys His
      115            120            125

Tyr Lys Ser Gly Lys Phe Ser Ala Ala Ala Ser Leu Leu Lys Gly Ala
      130            135            140

Asp Gly Gly Asp Gly Gly Ser Ile Ala Gln Arg Ser Met Tyr Leu Leu
      145            150            155            160

Leu Gln Ser Arg Ala Arg Met Gly Asn Cys Glu Ser Val Ile Glu Ile
      165            170            175

Gly Gly Arg Tyr Ala Asn Arg Phe Lys Asp Ser Pro Thr Ala Pro Glu
      180            185            190
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Ala Met Phe Lys Ile Gly Glu Cys Gln Tyr Arg Leu Gln Gln Lys Asp  
195 200 205

Ile Ala Arg Ala Thr Trp Arg Ser Leu Ile Gln Thr Tyr Pro Gly Ser  
210 215 220

Pro Ala Ala Lys Arg Ala Ala Ala Val Arg Lys Arg  
225 230 235

<210> 2669

<211> 717

<212> DNA

<213> *Neisseria meningitidis*

<400> 2669

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atgaagacca aattaccgct ttttatcatt tggctgtccg tatccgccgc ctgttcttcc 60
cctgtttccc gcaatattca ggatatgcgg ctcgaaccgc aggagaggc aggtagttcg 120
gacgtatttc cctatcccg tcccactctg caagaccgtt tggattatct ggaaggcaca 180
ctcgtccgcc tgtcgaacga agtggaacc ttaaaccgca aagtcaaagc actggagcat 240
gcgaaaacac acccttccag cagggcatac gtccaaaaac tcgacgaccg caagttgaaa 300
gagcattacc tcaataccga aggcggcagc gcatccgcac ataccgtcga aaccgcacaa 360
aacctctaca atcaggcact caaacactat aaaagcggca ggttttctgc cgctgcctcc 420
ctgttgaaaag gcgcggacgg aggcgacggc ggcagcatcg cgcaacgcag tatgtacctg 480
ttgctgcaaa gcagggcgcg tatgggcaac tgcgaatccg tcatcgaaat cgagggcggt 540
tacgccaacc gtttcaaaga cagcccaacc gcgcctgaag ccatgttcaa aatcggcgaa 600
tgccaatata ggcttcagca aaaagacatt gcaagggcga cttggcgag cctgatacag 660
acctatcccg gcagcccggc ggcaaaacgc gccgccgcag ccgtgcgcaa acgatag 717
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<210> 2670

<211> 238

<212> PRT

<213> *Neisseria meningitidis*

<400> 2670

Met Lys Thr Lys Leu Pro Leu Phe Ile Ile Trp Leu Ser Val Ser Ala  
1 5 10 15

Ala Cys Ser Ser Pro Val Ser Arg Asn Ile Gln Asp Met Arg Leu Glu  
20 25 30

Pro Gln Ala Glu Ala Gly Ser Ser Asp Ala Ile Pro Tyr Pro Val Pro  
35 40 45

Thr Leu Gln Asp Arg Leu Asp Tyr Leu Glu Gly Thr Leu Val Arg Leu  
50 55 60

Ser Asn Glu Val Glu Thr Leu Asn Gly Lys Val Lys Ala Leu Glu His  
65 70 75 80

Ala Lys Thr His Pro Ser Ser Arg Ala Tyr Val Gln Lys Leu Asp Asp  
85 90 95

Arg Lys Leu Lys Glu His Tyr Leu Asn Thr Glu Gly Gly Ser Ala Ser  
100 105 110

Ala	His	Thr	Val	Glu	Thr	Ala	Gln	Asn	Leu	Tyr	Asn	Gln	Ala	Leu	Lys	115	120	125
His	Tyr	Lys	Ser	Gly	Arg	Phe	Ser	Ala	Ala	Ala	Ser	Leu	Leu	Lys	Gly	130	135	140
Ala	Asp	Gly	Gly	Asp	Gly	Gly	Ser	Ile	Ala	Gln	Arg	Ser	Met	Tyr	Leu	145	150	155
Leu	Leu	Gln	Ser	Arg	Ala	Arg	Met	Gly	Asn	Cys	Glu	Ser	Val	Ile	Glu	165	170	175
Ile	Gly	Gly	Arg	Tyr	Ala	Asn	Arg	Phe	Lys	Asp	Ser	Pro	Thr	Ala	Pro	180	185	190
Glu	Ala	Met	Phe	Lys	Ile	Gly	Glu	Cys	Gln	Tyr	Arg	Leu	Gln	Gln	Lys	195	200	205
Asp	Ile	Ala	Arg	Ala	Thr	Trp	Arg	Ser	Leu	Ile	Gln	Thr	Tyr	Pro	Gly	210	215	220
Ser	Pro	Ala	Ala	Lys	Arg	Ala	Ala	Ala	Ala	Val	Arg	Lys	Arg			225	230	235

<210> 2671  
 <211> 1029  
 <212> DNA  
 <213> *Neisseria meningitidis*

<400> 2671

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catcgtggca	ttaagttggt	cgagtttgag	ggtacagcca	agccgtgtgt	aatcaactgc	120
cctaaacatg	gaaaccaaac	ctgttcgagg	tactccaata	tgttcatagg	aagtagctgg	180
ggttgccctt	cttgtggtaa	tgagcaagct	gcaaaagccg	gtatagcgac	ccttaggaag	240
aatcacatag	cgttagaaat	gctgaaacag	gctgtaacag	gtatgaccaa	gcaagagcgc	300
atcacgacgc	aagcctacaa	tgagatgacc	aaatccgtgg	caggttcaaa	cagcatagtc	360
cttaacgatg	tccaaggcga	tacgaccatc	aacaaccatc	atacgcatac	gcacaaccac	420
agcgatgccg	atggcaaagc	actgtcgatg	aggctcacac	cccgtccttt	gttggtcagac	480
cgtcaggcgg	cggctttcgc	ccgtacaggc	aaactcacgg	gcagtttcga	cctgtttgct	540
tcggtggtcg	ccccctcgca	gtacacgttt	gccgttgcca	tgcccagacac	gtccatgtcg	600
ccggttatcg	aaaagggaga	cttgctgggtg	gtcgagccgc	gtatgtgcc	tgcggaacgaa	660
gacatcgcg	tgattgaact	gtccgacaag	cggctggtcg	tcgcgcaoct	tgttatcgat	720
attgcgggca	ggatgctgat	ttatcagacg	ggcaggccgt	ctgaagcctt	tgacctgccc	780
gaaggcagca	cgatttttagg	tgtggtgctg	gagtcaaaaa	acggtttatg	tccgcgcgac	840
aggcaagaag	gcgtgttgat	tcggattacc	gcccctgatg	tgtggacggg	tggtatgatt	900
tccgcttcca	aaacgtcgtg	tacgcgccc	accgcagccc	ggaaatcagc	cgtatgcttt	960
cttcgatttt	ggcaggctac	gcgtgggata	ccgaaaaccc	gttcgtggcg	aatccgaac	1020
aacgcctga						1029

<210> 2672  
 <211> 342  
 <212> PRT  
 <213> *Neisseria meningitidis*

<400> 2672

Met	Ala	Arg	Arg	Ser	Lys	Thr	Phe	Glu	Glu	Ala	Ala	Ala	Glu	Val	Glu	
1				5				10						15		
Glu	Arg	Phe	Gly	His	Arg	Gly	Ile	Lys	Leu	Val	Glu	Phe	Glu	Gly	Thr	
			20					25					30			
Ala	Lys	Pro	Cys	Val	Ile	Asn	Cys	Pro	Lys	His	Gly	Asn	Gln	Thr	Cys	
		35					40					45				
Ser	Arg	Tyr	Ser	Asn	Met	Phe	Ile	Gly	Ser	Ser	Trp	Gly	Cys	Pro	Ser	
	50					55					60					
Cys	Gly	Asn	Glu	Gln	Ala	Ala	Lys	Ala	Gly	Ile	Ala	Thr	Leu	Arg	Lys	
65					70					75					80	
Asn	His	Ile	Ala	Leu	Glu	Met	Leu	Lys	Gln	Ala	Val	Thr	Gly	Met	Thr	
				85					90					95		
Lys	Gln	Glu	Arg	Ile	Thr	Thr	Gln	Ala	Tyr	Asn	Glu	Met	Thr	Lys	Ser	
			100					105						110		
Val	Ala	Gly	Ser	Asn	Ser	Ile	Val	Leu	Asn	Asp	Val	Gln	Gly	Asp	Thr	
		115					120					125				
Thr	Ile	Asn	Asn	His	His	Thr	His	Thr	His	Asn	His	Ser	Asp	Ala	Asp	
	130					135					140					
Gly	Lys	Ala	Leu	Ser	Met	Arg	Leu	Thr	Pro	Arg	Pro	Leu	Leu	Ser	Asp	
145					150					155					160	
Arg	Gln	Ala	Ala	Ala	Phe	Ala	Arg	Thr	Gly	Lys	Leu	Thr	Gly	Ser	Phe	
				165					170					175		
Asp	Leu	Phe	Ala	Ser	Val	Val	Ala	Pro	Ser	Gln	Tyr	Thr	Phe	Ala	Val	
		180						185					190			
Ala	Met	Pro	Asp	Thr	Ser	Met	Ser	Pro	Val	Ile	Glu	Lys	Gly	Asp	Leu	
		195					200					205				
Leu	Val	Val	Glu	Pro	Arg	Met	Cys	Pro	Ala	Asp	Glu	Asp	Ile	Ala	Leu	
	210					215					220					
Ile	Glu	Leu	Ser	Asp	Lys	Arg	Leu	Val	Val	Ala	His	Leu	Val	Ile	Asp	
225					230					235					240	
Ile	Ala	Gly	Arg	Met	Leu	Ile	Tyr	Gln	Thr	Gly	Arg	Pro	Ser	Glu	Ala	
				245					250					255		
Phe	Asp	Leu	Pro	Glu	Gly	Ser	Thr	Ile	Leu	Gly	Val	Val	Leu	Glu	Ser	
		260						265					270			
Lys	Asn	Gly	Leu	Cys	Pro	Pro	His	Arg	Gln	Glu	Gly	Val	Leu	Ile	Arg	
		275					280					285				
Ile	Thr	Ala	Pro	Asp	Val	Trp	Thr	Val	Gly	Met	Ile	Ser	Ala	Ser	Lys	
	290					295					300					

Thr Ser Cys Thr Arg Pro Thr Ala Ala Arg Lys Ser Ala Val Cys Phe  
305 310 315 320

Leu Arg Phe Trp Gln Ala Thr Arg Gly Ile Pro Lys Thr Arg Ser Trp  
325 330 335

Arg Asn Pro Asn Asn Ala  
340

<210> 2673

<211> 1029

<212> DNA

<213> Neisseria meningitidis

<400> 2673

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<210> 2674

<211> 343

<212> PRT

<213> Neisseria meningitidis

<400> 2674

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Ala Lys Pro Cys Val Ile Asn Cys Pro Lys His Gly Asn Gln Thr Cys  
35 40 45

Ser Arg Tyr Ser Asn Met Phe Ile Gly Ser Ser Trp Gly Cys Pro Ser  
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Cys Gly Asn Glu Gln Ala Ala Lys Ala Gly Ile Ala Thr Leu Arg Lys  
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<213> Neisseria gonorrhoeae

<400> 2675

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<210> 2676

<211> 800

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2676

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Phe Gly Leu Phe Phe Gly Phe Cys Val Phe Gly Val Gly Leu Val Ala  
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Ile	Ala	Ile	Leu	Val	Thr	Tyr	Pro	Lys	Leu	Pro	Ser	Leu	Asp	Ser	Leu	35	40	45	
Gln	His	Tyr	Gln	Pro	Lys	Met	Pro	Leu	Thr	Ile	Tyr	Ser	Ala	Asp	Gly	50	55	60	
Glu	Val	Ile	Gly	Met	Tyr	Gly	Glu	Gln	Arg	Arg	Glu	Phe	Thr	Lys	Ile	65	70	75	80
Gly	Asp	Phe	Pro	Glu	Val	Leu	Arg	Asn	Ala	Val	Ile	Ala	Ala	Glu	Asp	85	90	95	
Lys	Arg	Phe	Tyr	Arg	His	Trp	Gly	Val	Asp	Val	Trp	Gly	Val	Ala	Arg	100	105	110	
Ala	Ala	Val	Gly	Asn	Val	Val	Ser	Gly	Ser	Val	Gln	Ser	Gly	Ala	Ser	115	120	125	
Thr	Ile	Thr	Gln	Gln	Val	Ala	Lys	Asn	Phe	Tyr	Leu	Ser	Ser	Glu	Lys	130	135	140	
Thr	Phe	Thr	Arg	Lys	Phe	Asn	Glu	Val	Leu	Leu	Ala	Tyr	Lys	Ile	Glu	145	150	155	160
Gln	Ser	Leu	Ser	Lys	Asp	Lys	Ile	Leu	Glu	Leu	Tyr	Phe	Asn	Gln	Ile	165	170	175	
Tyr	Leu	Gly	Gln	Arg	Ala	Tyr	Gly	Phe	Ala	Ser	Ala	Ala	Gln	Ile	Tyr	180	185	190	
Phe	Asn	Lys	Asn	Val	Arg	Asp	Leu	Thr	Leu	Ala	Glu	Ala	Ala	Met	Leu	195	200	205	
Ala	Gly	Leu	Pro	Lys	Ala	Pro	Ser	Ala	Tyr	Asn	Pro	Ile	Val	Asn	Pro	210	215	220	
Glu	Arg	Ala	Lys	Leu	Arg	Gln	Lys	Tyr	Ile	Leu	Asn	Asn	Met	Leu	Glu	225	230	235	240
Glu	Lys	Met	Ile	Thr	Val	Gln	Gln	Arg	Asp	Gln	Ala	Leu	Asn	Glu	Glu	245	250	255	
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Val	Ala	Glu	Met	Val	Arg	Arg	Glu	Leu	Tyr	Glu	Lys	Tyr	Gly	Glu	Asp	275	280	285	
Ala	Tyr	Thr	Gln	Gly	Phe	Lys	Val	Tyr	Thr	Thr	Val	Arg	Thr	Asp	His	290	295	300	
Gln	Lys	Ala	Ala	Thr	Glu	Ala	Leu	Arg	Lys	Ala	Leu	Arg	Asn	Phe	Asp	305	310	315	320
Arg	Gly	Ser	Ser	Tyr	Arg	Gly	Ala	Glu	Asn	Tyr	Ile	Asp	Leu	Ser	Lys	325	330	335	

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 Thr Val Asp Lys Met Val Pro Ala Val Val Leu Asp Val Thr Lys Lys  
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 Lys Asn Val Val Ile Gln Leu Pro Gly Gly Arg Arg Val Ala Leu Asp  
 370 375 380  
 Arg Arg Ala Leu Gly Phe Ala Ala Arg Ala Val Asp Asn Glu Lys Met  
 385 390 395 400  
 Gly Glu Asp Arg Ile Arg Arg Gly Ala Val Ile Arg Val Lys Asn Asn  
 405 410 415  
 Gly Gly Arg Trp Ala Val Val Gln Glu Pro Leu Leu Gln Gly Ala Leu  
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 Val Ser Leu Asp Ala Lys Thr Gly Ala Val Arg Ala Leu Val Gly Gly  
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 Tyr Asp Phe His Ser Lys Thr Phe Asn Arg Ala Val Gln Ala Met Arg  
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 Gln Pro Gly Ser Thr Phe Lys Pro Phe Val Tyr Ser Ala Ala Leu Ser  
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 Lys Gly Met Thr Ala Ser Thr Val Val Asn Asp Ala Pro Ile Ser Leu  
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 Pro Gly Lys Gly Pro Asn Gly Ser Val Trp Thr Pro Lys Asn Ser Asp  
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 Gly Arg Tyr Ser Gly Tyr Ile Thr Leu Arg Gln Ala Leu Thr Ala Ser  
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 Lys Asn Met Val Ser Ile Arg Ile Leu Met Ser Ile Gly Val Gly Tyr  
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 Ala Gln Gln Tyr Ile Arg Arg Phe Gly Phe Arg Pro Ser Glu Leu Pro  
 545 550 555 560  
 Ala Ser Leu Ser Met Ala Leu Gly Thr Gly Glu Thr Thr Pro Leu Lys  
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 Val Ala Glu Ala Tyr Ser Val Phe Ala Asn Gly Gly Tyr Arg Val Ser  
 580 585 590  
 Ser His Val Ile Asp Lys Ile Tyr Asp Arg Asp Gly Arg Leu Arg Ala  
 595 600 605  
 Gln Met Gln Pro Leu Val Ala Gly Gln Asn Ala Pro Gln Ala Ile Asp  
 610 615 620  
 Pro Arg Asn Ala Tyr Ile Met Tyr Lys Ile Met Gln Asp Val Val Arg



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Gly Lys Thr Gly Thr Thr Asn Asp Asn Lys Asp Ala Trp Phe Val Gly						
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Lys Ser Met Gly Arg Ala Gly Tyr Gly Gly Thr Ile Ala Val Pro Val						
	690			695		700
Trp Val Asp Tyr Met Arg Phe Ala Leu Lys Gly Lys Gln Gly Lys Gly						
	705			710		715
Met Lys Met Pro Glu Gly Val Val Ser Ser Asn Gly Glu Tyr Tyr Met						
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Lys Glu Arg Met Val Thr Asp Pro Gly Leu Met Leu Asp Asn Ser Gly						
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Ile Ala Pro Gln Pro Ser Arg Arg Ala Lys Glu Asp Asp Glu Ala Ala						
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Val Glu Asn Glu Gln Gln Gly Arg Ser Asp Glu Thr Arg Gln Asp Val						
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 <212> DNA  
 <213> *Neisseria meningitidis*

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<210> 2678

<211> 805

<212> PRT

<213> Neisseria meningitidis

<400> 2678

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Ile Ala Ile Leu Val Thr Tyr Pro Lys Leu Pro Ser Leu Asp Ser Leu  
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Gln His Tyr Gln Pro Lys Met Pro Leu Thr Ile Tyr Ser Ala Asp Gly  
50 55 60

Glu Val Ile Gly Met Tyr Gly Glu Gln Arg Arg Glu Phe Thr Lys Ile  
65 70 75 80

Gly Asp Phe Pro Glu Val Leu Arg Asn Ala Val Ile Ala Ala Glu Asp  
85 90 95

Lys Arg Phe Tyr Arg His Trp Gly Val Asp Val Trp Gly Val Ala Arg  
100 105 110

Ala Ala Val Gly Asn Val Val Ser Gly Ser Val Gln Ser Gly Ala Ser  
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Thr Ile Thr Gln Gln Val Ala Lys Asn Phe Tyr Leu Ser Ser Glu Lys  
130 135 140

Thr Phe Thr Arg Lys Phe Asn Glu Val Leu Leu Ala Tyr Lys Ile Glu  
145 150 155 160

Gln Ser Leu Ser Lys Asp Lys Ile Leu Glu Leu Tyr Phe Asn Gln Ile  
165 170 175

Tyr Leu Gly Gln Arg Ala Tyr Gly Phe Ala Ser Ala Ala Gln Ile Tyr  
180 185 190

Phe Asn Lys Asn Val Arg Asp Leu Thr Leu Ala Glu Ala Ala Met Leu  
195 200 205

Ala Gly Leu Pro Lys Ala Pro Ser Ala Tyr Asn Pro Ile Val Asn Pro  
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Glu Arg Ala Lys Leu Arg Gln Lys Tyr Ile Leu Asn Asn Met Leu Glu  
225 230 235 240

Glu Lys Met Ile Thr Val Gln Gln Arg Asp Gln Ala Leu Asn Glu Glu  
245 250 255

Leu His Tyr Glu Arg Phe Val Arg Lys Ile Asp Gln Ser Ala Leu Tyr  
260 265 270

Val Ala Glu Met Val Arg Gln Glu Leu Tyr Glu Lys Tyr Gly Glu Asp  
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Ala Tyr Thr Gln Gly Phe Lys Val Tyr Thr Thr Val Arg Ala Asp His  
290 295 300

Gln Lys Val Ala Thr Glu Ala Leu Arg Lys Ala Leu Arg Asn Phe Asp  
305 310 315 320

Arg Gly Ser Ser Tyr Arg Gly Ala Glu Asn Tyr Ile Asp Leu Ser Lys  
325 330 335

Ser Glu Asp Val Glu Glu Thr Val Ser Gln Tyr Leu Ser Gly Leu Tyr  
340 345 350

Thr Val Asp Lys Met Val Pro Ala Val Val Leu Asp Val Thr Lys Lys  
355 360 365

Lys Asn Val Val Ile Gln Leu Pro Gly Gly Arg Arg Val Thr Leu Asp  
370 375 380

Arg Arg Ala Leu Gly Phe Ala Ala Arg Ala Val Asn Asn Glu Lys Met  
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Lys	Gly	Met	Thr	Ala	Ser	Thr	Val	Val	Asn	Asp	Ala	Pro	Ile	Ser	Leu	
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Trp	Val	Asp	Tyr	Met	Arg	Phe	Ala	Leu	Lys	Gly	Lys	Gln	Gly	Lys	Gly	
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Met	Lys	Met	Pro	Glu	Gly	Val	Val	Ser	Ser	Asn	Gly	Glu	Tyr	Tyr	Met	

725

730

735

Lys Glu Arg Met Val Thr Asp Pro Gly Leu Thr Leu Asp Asn Ser Gly  
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Ile Ala Pro Gln Pro Ser Arg Arg Ala Lys Glu Asp Asp Gly Gly Ala  
 755 760 765

Ala Glu Gly Gly Arg Gln Ala Ala Asp Asp Glu Val Arg Gln Asp Met  
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Gln Glu Thr Pro Val Leu Pro Ser Asn Thr Gly Ser Lys Gln Gln Gln  
 785 790 795 800

Leu Asp Ser Leu Phe  
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&lt;210&gt; 2679

&lt;211&gt; 2420

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 2679

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agcgttttgt tcggaaaatc gatcagagt ctttatatgt ggcggaatg gtgcgtcagg 840
aactgtatga gaaatacgtt gaagatgcct atacgcaggg ttttaagggt tataccacgg 900
tccgcgccga tcatcagaag gtggcaaccg aggcattgcg caaggctcta cgggaatttc 960
atcgcgccag cagctaccgc ggtgcggaaa actatatcga tttgagtaag agtgaagatg 1020
tcgaggagac tgtcagccag tatctgtcgg gactctatac cgtcgataaa atggttccc 1080
ccgttgtgtt ggatgtgact aaaaagaaaa atgtcgtcat acagctgccc ggcggcaggc 1140
gggttacgct tgacaggcgc gccttgggtt ttgcggcccg cgcggtcaat aatgaaaaaa 1200
tgggggagga ccgtatccgc aggggcgcgg tcatccgtgt caaaaacaac ggcgggcggt 1260
ggcggttgt tcaagagccg ttgctgcag gggttttgt ttcgctggat gcaaaaaccg 1320
gagctgtgcg cgcgctggtc ggcggttatg attttcacag caaaacattc aatcgtgccg 1380
ttcaggcaat gcggcagccg ggttcgacct ttaagccgtt tgtctattcg gcggcattat 1440
ctaaggggat gaccgcgtcc acagtgggta acgatgcgcc gatttccctg ccggggaaaag 1500
ggccgaacgg ttcggtttgg acacctaaaa attcagacgg cagatattcc ggctacatta 1560
ctttgagaca ggctctgacg gcttccaaga atatggtttc catccgtatt ttgatgtcta 1620
tcggtgtcgg ttacgcgcaa cagtatatcc ggcgtttcgg cttcaggtcg tccgagctgc 1680
cggcaagcct gtctatggct ttaggtacgg gcgagacaac gccgttgaaa gtggcgagg 1740
catatagcgt atttgcaaac ggcgatata gggtttcttc gcacgtaatc gataagattt 1800
atgacagaga cggcaggttg cgcgccccaa tgcaaccttt ggtggccggg caaatgcgc 1860
ctcaggcaat cgatccgcgc aatgcctata ttatgtataa gattatgcag gatgtggtcc 1920

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gtgttggtac ggcaaggggg gcagctgcgt tgggaagaac ggatattgcc ggtaaaacgg 1980
gtacgaccaa tgacaataag gatgcgtggt ttgtcggttt taaccctgat gtggttactg 2040
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ttgcggtgcc ggtttgggtg gactatatgc gttttgcgtt gaaaggaaaag cagggcaagg 2160
ggatgaaaat gcctgaaggt gtggtcagca gcaatggcga atactatatg aaggaacgta 2220
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<210> 2680

<211> 805

<212> PRT

<213> Neisseria meningitidis

<400> 2680

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Met Val Asn Tyr Tyr Ser Ala Met Ile Lys Lys Ile Leu Thr Thr Cys
  1              5              10              15

Phe Gly Leu Val Phe Gly Phe Cys Val Phe Gly Val Gly Leu Val Ala
      20              25              30

Ile Ala Ile Leu Val Thr Tyr Pro Lys Leu Pro Ser Leu Asp Ser Leu
      35              40              45

Gln His Tyr Gln Pro Lys Met Pro Leu Thr Ile Tyr Ser Ala Asp Gly
      50              55              60

Glu Val Ile Gly Met Tyr Gly Glu Gln Arg Arg Glu Phe Thr Lys Ile
      65              70              75              80

Gly Asp Phe Pro Glu Val Leu Arg Asn Ala Val Ile Ala Ala Glu Asp
      85              90              95

Lys Arg Phe Tyr Arg His Trp Gly Val Asp Val Trp Gly Val Ala Arg
      100             105             110

Ala Ala Val Gly Asn Val Val Ser Gly Ser Val Gln Ser Gly Ala Ser
      115             120             125

Thr Ile Thr Gln Gln Val Ala Lys Asn Phe Tyr Leu Ser Ser Glu Lys
      130             135             140

Thr Phe Thr Arg Lys Phe Asn Glu Val Leu Leu Ala Tyr Lys Ile Glu
      145             150             155             160

Gln Ser Leu Ser Lys Asp Lys Ile Leu Glu Leu Tyr Phe Asn Gln Ile
      165             170             175

Tyr Leu Gly Gln Arg Ala Tyr Gly Phe Ala Ser Ala Ala Gln Ile Tyr
      180             185             190

Phe Asn Lys Asn Val Arg Asp Leu Thr Leu Ala Glu Ala Ala Met Leu
      195             200             205

Ala Gly Leu Pro Lys Ala Pro Ser Ala Tyr Asn Pro Ile Val Asn Pro

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210	215	220
Glu Arg Ala Lys Leu Arg Gln Lys Tyr Ile Leu Asn Asn Met Leu Glu 225 230 235 240		
Glu Lys Met Ile Thr Val Gln Gln Arg Asp Gln Ala Leu Asn Glu Glu 245 250 255		
Leu His Tyr Glu Arg Phe Val Arg Lys Ile Asp Gln Ser Ala Leu Tyr 260 265 270		
Val Ala Glu Met Val Arg Gln Glu Leu Tyr Glu Lys Tyr Gly Glu Asp 275 280 285		
Ala Tyr Thr Gln Gly Phe Lys Val Tyr Thr Thr Val Arg Ala Asp His 290 295 300		
Gln Lys Val Ala Thr Glu Ala Leu Arg Lys Ala Leu Arg Asn Phe Asp 305 310 315 320		
Arg Gly Ser Ser Tyr Arg Gly Ala Glu Asn Tyr Ile Asp Leu Ser Lys 325 330 335		
Ser Glu Asp Val Glu Glu Thr Val Ser Gln Tyr Leu Ser Gly Leu Tyr 340 345 350		
Thr Val Asp Lys Met Val Pro Ala Val Val Leu Asp Val Thr Lys Lys 355 360 365		
Lys Asn Val Val Ile Gln Leu Pro Gly Gly Arg Arg Val Thr Leu Asp 370 375 380		
Arg Arg Ala Leu Gly Phe Ala Ala Arg Ala Val Asn Asn Glu Lys Met 385 390 395 400		
Gly Glu Asp Arg Ile Arg Arg Gly Ala Val Ile Arg Val Lys Asn Asn 405 410 415		
Gly Gly Arg Trp Ala Val Val Gln Glu Pro Leu Leu Gln Gly Ala Leu 420 425 430		
Val Ser Leu Asp Ala Lys Thr Gly Ala Val Arg Ala Leu Val Gly Gly 435 440 445		
Tyr Asp Phe His Ser Lys Thr Phe Asn Arg Ala Val Gln Ala Met Arg 450 455 460		
Gln Pro Gly Ser Thr Phe Lys Pro Phe Val Tyr Ser Ala Ala Leu Ser 465 470 475 480		
Lys Gly Met Thr Ala Ser Thr Val Val Asn Asp Ala Pro Ile Ser Leu 485 490 495		
Pro Gly Lys Gly Pro Asn Gly Ser Val Trp Thr Pro Lys Asn Ser Asp 500 505 510		
Gly Arg Tyr Ser Gly Tyr Ile Thr Leu Arg Gln Ala Leu Thr Ala Ser		

[illegible]



<210> 2681  
 <211> 768  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 2681  
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 gcctatgtgt acggcaacat catcacctac cgcgccgtcg cgccccatcg gactgccttt 120  
 atgtcgatgc ggatgaagca gtttgaacaa gaaggctcgc atgtcgcact ggattaccgc 180  
 tgggtgccct acaaccgcat ttccaccaac ctgaaaaaag ccctgattgc ttccgaagat 240  
 gtccgttttg ccggacacgg gggcttcgat ggggacggca ttcaaaacgc catcaggcgc 300  
 aaccggaaca gcggcgaagt gaaggcgggc ggatcgacca tcagccagca gcttgccaaa 360  
 aacctcttcc tcaacgaaag ccgcaactat ctgcgcaaag gggaagaggc ggccattacg 420  
 gcaatgatgg aagctgttac cgacaaaaac aggtattttcg aactgtattt aaactcaatc 480  
 gaatggcact acggcgtttt cggcgcggaa gctgcgtccc ggtattttta taaaaaacgc 540  
 gccgcagacc tgaccaaaca gcaggcggcg aaactgacgg tactcgtccc cgccccgttt 600  
 tactactctg accatccaaa aagcaaacgg ctgcgcaaca aaaccaatat cgtgctcaga 660  
 cgcattgggtt cggcaaatta ccccaaacgc aaacggactg attgttccag atatggaaat 720  
 gccgcctgaa ctgggggttcg aacggcatat gttttctggg acttataa 768

<210> 2682  
 <211> 254  
 <212> PRT  
 <213> *Neisseria gonorrhoeae*

<400> 2682  
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 Ile Phe Phe Asn Ala Tyr Val Tyr Gly Asn Ile Ile Thr Tyr Arg Ala  
 20 25 30  
 Val Ala Pro His Arg Thr Ala Phe Met Ser Met Arg Met Lys Gln Phe  
 35 40 45  
 Glu Gln Glu Gly Arg Asp Val Ala Leu Asp Tyr Arg Trp Val Pro Tyr  
 50 55 60  
 Asn Arg Ile Ser Thr Asn Leu Lys Lys Ala Leu Ile Ala Ser Glu Asp  
 65 70 75 80  
 Val Arg Phe Ala Gly His Gly Gly Phe Asp Gly Asp Gly Ile Gln Asn  
 85 90 95  
 Ala Ile Arg Arg Asn Arg Asn Ser Gly Glu Val Lys Ala Gly Gly Ser  
 100 105 110  
 Thr Ile Ser Gln Gln Leu Ala Lys Asn Leu Phe Leu Asn Glu Ser Arg  
 115 120 125  
 Asn Tyr Leu Arg Lys Gly Glu Glu Ala Ala Ile Thr Ala Met Met Glu  
 130 135 140  
 Ala Val Thr Asp Lys Asn Arg Ile Phe Glu Leu Tyr Leu Asn Ser Ile  
 145 150 155 160

Glu Trp His Tyr Gly Val Phe Gly Ala Glu Ala Ala Ser Arg Tyr Phe  
                   165                                  170                                  175  
 Tyr Lys Lys Pro Ala Ala Asp Leu Thr Lys Gln Gln Ala Ala Lys Leu  
                   180                                  185                                  190  
 Thr Val Leu Val Pro Ala Pro Phe Tyr Tyr Ser Asp His Pro Lys Ser  
                   195                                  200                                  205  
 Lys Arg Leu Arg Asn Lys Thr Asn Ile Val Leu Arg Arg Met Gly Ser  
                   210                                  215                                  220  
 Ala Asn Tyr Pro Lys Ala Lys Arg Thr Asp Cys Ser Arg Tyr Gly Asn  
                   225                                  230                                  235                                  240  
 Ala Ala Thr Gly Val Arg Thr Ala Tyr Val Phe Trp Asp Leu  
                   245                                  250

<210> 2683  
 <211> 702  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2683  
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 gcctatgtgt acggcaacat cattacctac cgcgccgtcg cgccccatcg gactgccttt 120  
 atgtcgatgc ggatgaagca gtttgaacag gaaggctcgc atgtcgcact ggattaccgc 180  
 tggatgccct acaaacgcat ttccaccaac ctgaaaaaag ccctgattgc ttccgaagat 240  
 gcccgtttcg ccgggcacgg cggcttcgat tggggcggca ttcaaaacgc catcaggcgc 300  
 aaccggaaca gcggaagt gaaggcgggc ggctcgacca tcagccagca gcttgccaaa 360  
 aacctgtttt taaacgaaag ccgcagctat atccgcaaag gcgaagaagc ggcgattacc 420  
 gcgatgatgg aagccgttac cgacaaagac aggatttttg aactgtattt aaactcaatc 480  
 gaatggcact acggcgtttt cggcgcgga ggcgcgtccc ggtattttta tcaaataccc 540  
 gccgccaagc tgaccaaaaca gcaggcggca aaactgacgg cgcgcgtccc cgccccgctc 600  
 tactacgccg accatccgaa aagcaaacgg ctccgcaaca aaaccaatat cgtgctcaaa 660  
 cgcattgggtt cggcagagtt gcctgaaagc gacacggact ga 702

<210> 2684  
 <211> 233  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2684  
 Met Phe Arg Ile Ile Lys Trp Leu Ile Ala Leu Pro Val Gly Ile Phe  
           1                  5                                  10                                  15  
 Ile Phe Phe Asn Ala Tyr Val Tyr Gly Asn Ile Ile Thr Tyr Arg Ala  
                   20                                  25                                  30  
 Val Ala Pro His Arg Thr Ala Phe Met Ser Met Arg Met Lys Gln Phe  
                   35                                  40                                  45  
 Glu Gln Glu Gly Arg Asp Val Ala Leu Asp Tyr Arg Trp Met Pro Tyr  
           50                                  55                                  60

Lys Arg Ile Ser Thr Asn Leu Lys Lys Ala Leu Ile Ala Ser Glu Asp  
 65 70 75 80  
 Ala Arg Phe Ala Gly His Gly Gly Phe Asp Trp Gly Gly Ile Gln Asn  
 85 90 95  
 Ala Ile Arg Arg Asn Arg Asn Ser Gly Lys Val Lys Ala Gly Gly Ser  
 100 105 110  
 Thr Ile Ser Gln Gln Leu Ala Lys Asn Leu Phe Leu Asn Glu Ser Arg  
 115 120 125  
 Ser Tyr Ile Arg Lys Gly Glu Glu Ala Ala Ile Thr Ala Met Met Glu  
 130 135 140  
 Ala Val Thr Asp Lys Asp Arg Ile Phe Glu Leu Tyr Leu Asn Ser Ile  
 145 150 155 160  
 Glu Trp His Tyr Gly Val Phe Gly Ala Glu Ala Ala Ser Arg Tyr Phe  
 165 170 175  
 Tyr Gln Ile Pro Ala Ala Lys Leu Thr Lys Gln Gln Ala Ala Lys Leu  
 180 185 190  
 Thr Ala Arg Val Pro Ala Pro Leu Tyr Tyr Ala Asp His Pro Lys Ser  
 195 200 205  
 Lys Arg Leu Arg Asn Lys Thr Asn Ile Val Leu Lys Arg Met Gly Ser  
 210 215 220  
 Ala Glu Leu Pro Glu Ser Asp Thr Asp  
 225 230

<210> 2685  
 <211> 702  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2685  
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 gcctatgtgt acggcaacat cattacctac cgcgccgtcg cgcccatcg gactgccttt 120  
 atgtcgatgc ggatgaagca gtttgaacag gaaggctcgc atgtcgcaact ggattaccgc 180  
 tggatgccct acaaacgcat ttccaccaac ctgaaaaaag ccctgattgc ttccgaagat 240  
 gcccgtttcg ccgggcacgg cggttcgat tggggcggca ttcaaaacgc catcaggcgc 300  
 aaccggaaca gcggcaaagt gaaggcgggc ggctcgacca tcagccagca gcttgccaaa 360  
 aacctgtttt taaacgaaag ccgcagctat atccgcaaag gcgaagaagc ggcgattacc 420  
 gcgatgatgg aagccgttac cgacaaagac aggatttttg aactgtattt aaactcaatc 480  
 gaatggcact acggcgtttt cggcgcggaa gccgcgtccc ggtattttta tcaaataccc 540  
 gccgccaagc tgaccaaaca gcaggcggca aaactgacgg cgcgcggtccc cgccccgctc 600  
 tactacgccg accatccgaa aagcaaacgg ctccgcaaca aaaccaatat cgtgctcaga 660  
 cgcatgggtt cggcagagtt gcctgaaagc gacacggact ga 702

<210> 2686  
 <211> 233  
 <212> PRT

<213> Neisseria meningitidis

<400> 2686

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Met Phe Arg Ile Ile Lys Trp Leu Ile Ala Leu Pro Val Gly Ile Phe
  1           5           10          15

Ile Phe Phe Asn Ala Tyr Val Tyr Gly Asn Ile Ile Thr Tyr Arg Ala
      20           25           30

Val Ala Pro His Arg Thr Ala Phe Met Ser Met Arg Met Lys Gln Phe
      35           40           45

Glu Gln Glu Gly Arg Asp Val Ala Leu Asp Tyr Arg Trp Met Pro Tyr
      50           55           60

Lys Arg Ile Ser Thr Asn Leu Lys Lys Ala Leu Ile Ala Ser Glu Asp
      65           70           75           80

Ala Arg Phe Ala Gly His Gly Gly Phe Asp Trp Gly Gly Ile Gln Asn
      85           90           95

Ala Ile Arg Arg Asn Arg Asn Ser Gly Lys Val Lys Ala Gly Gly Ser
      100          105          110

Thr Ile Ser Gln Gln Leu Ala Lys Asn Leu Phe Leu Asn Glu Ser Arg
      115          120          125

Ser Tyr Ile Arg Lys Gly Glu Glu Ala Ala Ile Thr Ala Met Met Glu
      130          135          140

Ala Val Thr Asp Lys Asp Arg Ile Phe Glu Leu Tyr Leu Asn Ser Ile
      145          150          155          160

Glu Trp His Tyr Gly Val Phe Gly Ala Glu Ala Ala Ser Arg Tyr Phe
      165          170          175

Tyr Gln Ile Pro Ala Ala Lys Leu Thr Lys Gln Gln Ala Ala Lys Leu
      180          185          190

Thr Ala Arg Val Pro Ala Pro Leu Tyr Tyr Ala Asp His Pro Lys Ser
      195          200          205

Lys Arg Leu Arg Asn Lys Thr Asn Ile Val Leu Arg Arg Met Gly Ser
      210          215          220

Ala Glu Leu Pro Glu Ser Asp Thr Asp
      225          230
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<210> 2687

<211> 1749

<212> DNA

<213> Neisseria gonorrhoeae

<400> 2687

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atgttgatta aaagcgaata taagccccgg atgctgccca aagaagagca ggtcaaaaag 60
ccgatgacca gtaacggacg gattagcttc gtcctgatgg caatggcggt cttgtttgcc 120
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tgtctgattg cccgcgggct gtatctgcag acggtaacgt ataacttttt gaaagaacag 180
ggcgacaacc ggatttgtcg gactcaagca ttgccggcta cacgcggtac ggtttcggac 240
cggaacgggtg cggtttttggc gttgagcgcg ccgacggagt ccctgtttgc cgtgcctaaa 300
gatatgaagg aaatgccgtc tgccgcccaa ttggaacgcc tgtccgagct tgtcgatgtg 360
ccggtcgatg ttttgaggaa caaactcgaa cagaaaggca agtcgtttat ttggatcaag 420
cggcagctcg atcccaaggt tgccgaagag gtcaaagcct tgggttttga aaacttttga 480
tttgaaaaag aattaaaacg ccattaccgg atgggcaacc tgtttgcaca cgtcatcgga 540
tttaccgata ttgacggcaa aggtcaggaa ggttttgaac ttctgcttga agacagcctg 600
tatggcgaag acggcgcgga agttgttttg cgggaccggc agggcaatat tgtggacagc 660
ttggactccc cgcgcaataa agcaccgcaa aacggcaaag acatcatcct ttccctcgat 720
cagaggattc agaccttggc ctatgaagag ttgaacaagg cggtcgaata ccatcaggca 780
aaagccggaa cggtggtggt tttggatgcc cgcacggggg aaatcctcgc cttggccaat 840
acgcccgcct acgatoccaa cagaccgggc cgggcagaca gcgaacagcg gcgcaaccgt 900
gccgtaaccg atatgatcga acctggttcg gcaatcaaac cgttcgtgat tgcaaggca 960
ttggatgcgg gcaaaaccga tttgaacgaa cggctgaata cgcagcctta taaaatcgga 1020
ccgtctcccg tgcgcgatga taccatggt taccctctt tggatgtgcg cggcattatg 1080
cagaaatcgt ccaacgtcgg cacaagcaaa ctgtctgcgc gtttcggcgc cgaagaaatg 1140
tatgacttct atcatgaatt gggcatcggg gtgcgtatgc actcgggctt tccgggggaa 1200
actgcagggt tgttgagaaa ttggcgagg tgccggccca tcgaacaggc gacgatgtct 1260
ttcggttacg gtctgcaatt gagcctgctg caattggcgc gcgcctatac cgcactgacg 1320
cacgacggcg ttttgctgcc gtcagcttt gagaagcagg cggttgcgc gcaaggcaaa 1380
cgcatattca aagaatcgac cgcgcgcgag gtacgcaatc tgatggtttc cgtaaccgag 1440
ccgggcggca ccggtacggc gggcgcggtg gacggtttcg atgtcggcgc taaaaccggc 1500
acggcgcgca agttcgtcaa cgggcgttat gccgacaaca aacacgtcgc tacctttatc 1560
ggttttgccc ccgcaaaaaa ccccgtgtg attgtggcgg taaccatcga cgaaccgact 1620
gcccacggct attacggcgg cgtagtggca gggccgcct tcaaaaaaat tatgggcggc 1680
agcctgaaca tcttgggcat ttccccgacc aagccactga ccgcccgcagc cgtcaaaaca 1740
ccgtcttaa

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<210> 2688

<211> 582

<212> PRT

<213> Neisseria gonorrhoeae

<400> 2688

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Met Leu Ile Lys Ser Glu Tyr Lys Pro Arg Met Leu Pro Lys Glu Glu
  1                      5                      10          15

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```

Gln Val Lys Lys Pro Met Thr Ser Asn Gly Arg Ile Ser Phe Val Leu
      20                      25          30

```

```

Met Ala Met Ala Val Leu Phe Ala Cys Leu Ile Ala Arg Gly Leu Tyr
    35                      40          45

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Leu Gln Thr Val Thr Tyr Asn Phe Leu Lys Glu Gln Gly Asp Asn Arg
    50                      55          60

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Ile Val Arg Thr Gln Ala Leu Pro Ala Thr Arg Gly Thr Val Ser Asp
    65                      70          75          80

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Arg Asn Gly Ala Val Leu Ala Leu Ser Ala Pro Thr Glu Ser Leu Phe
      85                      90          95

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Ala Val Pro Lys Asp Met Lys Glu Met Pro Ser Ala Ala Gln Leu Glu
    100                      105          110

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Arg Leu Ser Glu Leu Val Asp Val Pro Val Asp Val Leu Arg Asn Lys  
 115 120 125

Leu Glu Gln Lys Gly Lys Ser Phe Ile Trp Ile Lys Arg Gln Leu Asp  
 130 135 140

Pro Lys Val Ala Glu Glu Val Lys Ala Leu Gly Leu Glu Asn Phe Val  
 145 150 155 160

Phe Glu Lys Glu Leu Lys Arg His Tyr Pro Met Gly Asn Leu Phe Ala  
 165 170 175

His Val Ile Gly Phe Thr Asp Ile Asp Gly Lys Gly Gln Glu Gly Leu  
 180 185 190

Glu Leu Ser Leu Glu Asp Ser Leu Tyr Gly Glu Asp Gly Ala Glu Val  
 195 200 205

Val Leu Arg Asp Arg Gln Gly Asn Ile Val Asp Ser Leu Asp Ser Pro  
 210 215 220

Arg Asn Lys Ala Pro Gln Asn Gly Lys Asp Ile Ile Leu Ser Leu Asp  
 225 230 235 240

Gln Arg Ile Gln Thr Leu Ala Tyr Glu Glu Leu Asn Lys Ala Val Glu  
 245 250 255

Tyr His Gln Ala Lys Ala Gly Thr Val Val Val Leu Asp Ala Arg Thr  
 260 265 270

Gly Glu Ile Leu Ala Leu Ala Asn Thr Pro Ala Tyr Asp Pro Asn Arg  
 275 280 285

Pro Gly Arg Ala Asp Ser Glu Gln Arg Arg Asn Arg Ala Val Thr Asp  
 290 295 300

Met Ile Glu Pro Gly Ser Ala Ile Lys Pro Phe Val Ile Ala Lys Ala  
 305 310 315 320

Leu Asp Ala Gly Lys Thr Asp Leu Asn Glu Arg Leu Asn Thr Gln Pro  
 325 330 335

Tyr Lys Ile Gly Pro Ser Pro Val Arg Asp Asp Thr His Val Tyr Pro  
 340 345 350

Ser Leu Asp Val Arg Gly Ile Met Gln Lys Ser Ser Asn Val Gly Thr  
 355 360 365

Ser Lys Leu Ser Ala Arg Phe Gly Ala Glu Glu Met Tyr Asp Phe Tyr  
 370 375 380

His Glu Leu Gly Ile Gly Val Arg Met His Ser Gly Phe Pro Gly Glu  
 385 390 395 400

Thr Ala Gly Leu Leu Arg Asn Trp Arg Arg Trp Arg Pro Ile Glu Gln  
 405 410 415

Ala Thr Met Ser Phe Gly Tyr Gly Leu Gln Leu Ser Leu Leu Gln Leu  
420 425 430

Ala Arg Ala Tyr Thr Ala Leu Thr His Asp Gly Val Leu Leu Pro Leu  
435 440 445

Ser Phe Glu Lys Gln Ala Val Ala Pro Gln Gly Lys Arg Ile Phe Lys  
450 455 460

Glu Ser Thr Ala Arg Glu Val Arg Asn Leu Met Val Ser Val Thr Glu  
465 470 475 480

Pro Gly Gly Thr Gly Thr Ala Gly Ala Val Asp Gly Phe Asp Val Gly  
485 490 495

Ala Lys Thr Gly Thr Ala Arg Lys Phe Val Asn Gly Arg Tyr Ala Asp  
500 505 510

Asn Lys His Val Ala Thr Phe Ile Gly Phe Ala Pro Ala Lys Asn Pro  
515 520 525

Arg Val Ile Val Ala Val Thr Ile Asp Glu Pro Thr Ala His Gly Tyr  
530 535 540

Tyr Gly Gly Val Val Ala Gly Pro Pro Phe Lys Lys Ile Met Gly Gly  
545 550 555 560

Ser Leu Asn Ile Leu Gly Ile Ser Pro Thr Lys Pro Leu Thr Ala Ala  
565 570 575

Ala Val Lys Thr Pro Ser  
580

<210> 2689  
<211> 1746  
<212> DNA  
<213> Neisseria meningitidis

<400> 2689  
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ggtctgattg ctgcgaggact gtatctgcag acggtaacgt ataacttttt gaaagaacag 180  
ggcgacaacc ggattgtgcg gactcaaaca ttgccggcta cacgcggtag ggtttcggac 240  
cggaacggtg cggttttggc gttgagtgcg ccgacggagt ccctgtttgc cgtgcctaaa 300  
gagatgaagg aaatgccgtc tgccgcacaa ttggaacgcc tgtccgagct tgtcgatgtg 360  
ccggttgatg ttttgaggaa caagctcgaa cagaaaggca agtcgtttat ctggattaag 420  
cggcagctcg atcccaaggt tgccgaagag gtcaaagcct tgggtttgga aaactttgta 480  
tttgaaaaag aattaaaacg ccattaccgg atgggcaacc tgtttgcaca cgtcatcgga 540  
tttaccgata ttgacggcaa aggtcaggaa ggtttggaac tttcgcttga agacagcctg 600  
catggcgaag acggcgcgga agtcgttttg cgggaccggc agggcaatat tgtggacagc 660  
ttggactccc cgcgcaataa agccccgaaa aacggcaaag acatcatcct ttcctcgat 720  
cagaggattc agaccttggc ctatgaagag ttgaacaagg cggtcgaata ccatcaggca 780  
aaagccggaa cgggtggtgt tttggatgcc cgcacggggg aaatcctcgc cttggccaat 840  
acgcccgcct acgatcccaa caggcccggc cgggcagaca gcgaacagcg gcgcaaccgt 900  
gccgtaaccg atatgatcga acccggttcg gcaatcaaac cgtttgtgat tgcgaaggca 960

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ttggatgcgg gcaaaaccga tttgaacgaa cggctgaata cgcagcctta taaaatcgga 1020
ccgtctcccg tgcgcgatac ccatgtttac ccctctttgg atgtgcgcgg catcatgcag 1080
aaatcggtcca acgtcggcac aagcaaactg tctgcgcggt tcggtgccga agaaatgtat 1140
gacttctatc atgagttggg catcggtgtg cgtatgcact cgggctttcc gggcgaaact 1200
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cacggttatt acggcggcgt agtggcaggg ccgccttca aaaaaattat gggcggcagc 1680
ctgaacatct tgggcatttc ccgaccaag ccactgaccg ccgcagccgt caaaacaccg 1740
tcttaa 1746

```

<210> 2690

<211> 581

<212> PRT

<213> *Neisseria meningitidis*

<400> 2690

```

Met Leu Ile Lys Ser Glu Tyr Lys Pro Arg Met Leu Pro Lys Glu Glu
  1             5             10             15

```

```

Gln Val Lys Lys Pro Met Thr Ser Asn Gly Arg Ile Ser Phe Val Leu
      20             25             30

```

```

Met Ala Ile Ala Val Leu Phe Ala Gly Leu Ile Ala Arg Gly Leu Tyr
    35             40             45

```

```

Leu Gln Thr Val Thr Tyr Asn Phe Leu Lys Glu Gln Gly Asp Asn Arg
    50             55             60

```

```

Ile Val Arg Thr Gln Thr Leu Pro Ala Thr Arg Gly Thr Val Ser Asp
    65             70             75             80

```

```

Arg Asn Gly Ala Val Leu Ala Leu Ser Ala Pro Thr Glu Ser Leu Phe
      85             90             95

```

```

Ala Val Pro Lys Glu Met Lys Glu Met Pro Ser Ala Ala Gln Leu Glu
    100             105             110

```

```

Arg Leu Ser Glu Leu Val Asp Val Pro Val Asp Val Leu Arg Asn Lys
    115             120             125

```

```

Leu Glu Gln Lys Gly Lys Ser Phe Ile Trp Ile Lys Arg Gln Leu Asp
    130             135             140

```

```

Pro Lys Val Ala Glu Glu Val Lys Ala Leu Gly Leu Glu Asn Phe Val
    145             150             155             160

```

```

Phe Glu Lys Glu Leu Lys Arg His Tyr Pro Met Gly Asn Leu Phe Ala
      165             170             175

```

```

His Val Ile Gly Phe Thr Asp Ile Asp Gly Lys Gly Gln Glu Gly Leu
    180             185             190

```



Glu Leu Ser Leu Glu Asp Ser Leu His Gly Glu Asp Gly Ala Glu Val  
 195 200 205  
 Val Leu Arg Asp Arg Gln Gly Asn Ile Val Asp Ser Leu Asp Ser Pro  
 210 215 220  
 Arg Asn Lys Ala Pro Lys Asn Gly Lys Asp Ile Ile Leu Ser Leu Asp  
 225 230 235 240  
 Gln Arg Ile Gln Thr Leu Ala Tyr Glu Glu Leu Asn Lys Ala Val Glu  
 245 250 255  
 Tyr His Gln Ala Lys Ala Gly Thr Val Val Val Leu Asp Ala Arg Thr  
 260 265 270  
 Gly Glu Ile Leu Ala Leu Ala Asn Thr Pro Ala Tyr Asp Pro Asn Arg  
 275 280 285  
 Pro Gly Arg Ala Asp Ser Glu Gln Arg Arg Asn Arg Ala Val Thr Asp  
 290 295 300  
 Met Ile Glu Pro Gly Ser Ala Ile Lys Pro Phe Val Ile Ala Lys Ala  
 305 310 315 320  
 Leu Asp Ala Gly Lys Thr Asp Leu Asn Glu Arg Leu Asn Thr Gln Pro  
 325 330 335  
 Tyr Lys Ile Gly Pro Ser Pro Val Arg Asp Thr His Val Tyr Pro Ser  
 340 345 350  
 Leu Asp Val Arg Gly Ile Met Gln Lys Ser Ser Asn Val Gly Thr Ser  
 355 360 365  
 Lys Leu Ser Ala Arg Phe Gly Ala Glu Glu Met Tyr Asp Phe Tyr His  
 370 375 380  
 Glu Leu Gly Ile Gly Val Arg Met His Ser Gly Phe Pro Gly Glu Thr  
 385 390 395 400  
 Ala Gly Leu Leu Arg Asn Trp Arg Arg Trp Arg Pro Ile Glu Gln Ala  
 405 410 415  
 Thr Met Ser Phe Gly Tyr Gly Leu Gln Leu Ser Leu Leu Gln Leu Ala  
 420 425 430  
 Arg Ala Tyr Thr Ala Leu Thr His Asp Gly Val Leu Leu Pro Val Ser  
 435 440 445  
 Phe Glu Lys Gln Ala Val Ala Pro Gln Gly Lys Arg Ile Phe Lys Glu  
 450 455 460  
 Ser Thr Ala Arg Glu Val Arg Asn Leu Met Val Ser Val Thr Glu Pro  
 465 470 475 480  
 Gly Gly Thr Gly Thr Ala Gly Ala Val Asp Gly Phe Asp Val Gly Ala  
 485 490 495

Lys Thr Gly Thr Ala Arg Lys Phe Val Asn Gly Arg Tyr Ala Asp Asn  
500 505 510

Lys His Ile Ala Thr Phe Ile Gly Phe Ala Pro Ala Lys Asn Pro Arg  
515 520 525

Val Ile Val Ala Val Thr Ile Asp Glu Pro Thr Ala His Gly Tyr Tyr  
530 535 540

Gly Gly Val Val Ala Gly Pro Pro Phe Lys Lys Ile Met Gly Gly Ser  
545 550 555 560

Leu Asn Ile Leu Gly Ile Ser Pro Thr Lys Pro Leu Thr Ala Ala Ala  
565 570 575

Val Lys Thr Pro Ser  
580

<210> 2691  
<211> 1746  
<212> DNA  
<213> Neisseria meningitidis

<400> 2691  
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ggctctgatt ctcgcggact gtatctgcag acggtaacgt ataacttttt gaaagaacag 180  
ggcgacaacc ggattgtgcg gactcaaaca ttgccggcta cacgcggtag ggtttcggac 240  
cggaacgggtg cggttttggc gttgagtgcg ccgacggagt cctgtttgc cgtgcctaaa 300  
gagatgaagg aaatgccgtc tgccgcacaa ttggaacgcc tgccgagct tgcgatgtg 360  
ccggttgatg ttttgaggaa caagctcgaa cagaaaggca agtcgtttat ctggattaag 420  
cggcagctcg atcccaaggt tgccgaagag gtcaaagcct tgggtttgga aaactttgta 480  
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ttggactccc cgcgcaataa agccccgaaa aacggcaaag acatcatcct ttcctcgtat 720  
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aaatcgtcca acgtcggcac aagcaaaactg tctgcgcgtt tcgggtgcga agaaatgtat 1140  
gacttctatc atgagttggg catcgggtgtg cgtatgcact cgggctttcc gggcgaaact 1200  
gcaggtttgt tgagaaattg gcgcagggtg cggcctatcg aacaggcgac gatgtctttc 1260  
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gacggcggtt tactgccggt cagctttgaa aaacaggcgg ttgcgcgcga aggcaaacgc 1380  
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cacggttatt acggcggcgt agtggcaggg ccgcccttca aaaaaattat gggcggcagc 1680  
ctgaacatct tgggcatttc cccgaccaag ccactgaccg ccgcagccgt caaaacaccg 1740  
tcttaa 1746

<210> 2692

<211> 581

<212> PRT

<213> Neisseria meningitidis

<400> 2692

Met Leu Ile Lys Ser Glu Tyr Lys Pro Arg Met Leu Pro Lys Glu Glu  
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Gln Val Lys Lys Pro Met Thr Ser Asn Gly Arg Ile Ser Phe Val Leu  
20 25 30

Met Ala Ile Ala Val Leu Phe Ala Gly Leu Ile Ala Arg Gly Leu Tyr  
35 40 45

Leu Gln Thr Val Thr Tyr Asn Phe Leu Lys Glu Gln Gly Asp Asn Arg  
50 55 60

Ile Val Arg Thr Gln Thr Leu Pro Ala Thr Arg Gly Thr Val Ser Asp  
65 70 75 80

Arg Asn Gly Ala Val Leu Ala Leu Ser Ala Pro Thr Glu Ser Leu Phe  
85 90 95

Ala Val Pro Lys Glu Met Lys Glu Met Pro Ser Ala Ala Gln Leu Glu  
100 105 110

Arg Leu Ser Glu Leu Val Asp Val Pro Val Asp Val Leu Arg Asn Lys  
115 120 125

Leu Glu Gln Lys Gly Lys Ser Phe Ile Trp Ile Lys Arg Gln Leu Asp  
130 135 140

Pro Lys Val Ala Glu Glu Val Lys Ala Leu Gly Leu Glu Asn Phe Val  
145 150 155 160

Phe Glu Lys Glu Leu Lys Arg His Tyr Pro Met Gly Asn Leu Phe Ala  
165 170 175

His Val Ile Gly Phe Thr Asp Ile Asp Gly Lys Gly Gln Glu Gly Leu  
180 185 190

Glu Leu Ser Leu Glu Asp Ser Leu His Gly Glu Asp Gly Ala Glu Val  
195 200 205

Val Leu Arg Asp Arg Gln Gly Asn Ile Val Asp Ser Leu Asp Ser Pro  
210 215 220

Arg Asn Lys Ala Pro Lys Asn Gly Lys Asp Ile Ile Leu Ser Leu Asp  
225 230 235 240

Gln Arg Ile Gln Thr Leu Ala Tyr Glu Glu Leu Asn Lys Ala Val Glu  
245 250 255

Tyr His Gln Ala Lys Ala Gly Thr Val Val Val Leu Asp Ala Arg Thr  
260 265 270

Gly Glu Ile Leu Ala Leu Ala Asn Thr Pro Ala Tyr Asp Pro Asn Arg  
 275 280 285

Pro Gly Arg Ala Asp Ser Glu Gln Arg Arg Asn Arg Ala Val Thr Asp  
 290 295 300

Met Ile Glu Pro Gly Ser Ala Ile Lys Pro Phe Val Ile Ala Lys Ala  
 305 310 315 320

Leu Asp Ala Gly Lys Thr Asp Leu Asn Glu Arg Leu Asn Thr Gln Pro  
 325 330 335

Tyr Lys Ile Gly Pro Ser Pro Val Arg Asp Thr His Val Tyr Pro Ser  
 340 345 350

Leu Asp Val Arg Gly Ile Met Gln Lys Ser Ser Asn Val Gly Thr Ser  
 355 360 365

Lys Leu Ser Ala Arg Phe Gly Ala Glu Glu Met Tyr Asp Phe Tyr His  
 370 375 380

Glu Leu Gly Ile Gly Val Arg Met His Ser Gly Phe Pro Gly Glu Thr  
 385 390 395 400

Ala Gly Leu Leu Arg Asn Trp Arg Arg Trp Arg Pro Ile Glu Gln Ala  
 405 410 415

Thr Met Ser Phe Gly Tyr Gly Leu Gln Leu Ser Leu Leu Gln Leu Ala  
 420 425 430

Arg Ala Tyr Thr Ala Leu Thr His Asp Gly Val Leu Leu Pro Val Ser  
 435 440 445

Phe Glu Lys Gln Ala Val Ala Pro Gln Gly Lys Arg Ile Phe Lys Glu  
 450 455 460

Ser Thr Ala Arg Glu Val Arg Asn Leu Met Val Ser Val Thr Glu Pro  
 465 470 475 480

Gly Gly Thr Gly Thr Ala Gly Ala Val Asp Gly Phe Asp Val Gly Ala  
 485 490 495

Lys Thr Gly Thr Ala Arg Lys Phe Val Asn Gly Arg Tyr Ala Asp Asn  
 500 505 510

Lys His Ile Ala Thr Phe Ile Gly Phe Ala Pro Ala Lys Asn Pro Arg  
 515 520 525

Val Ile Val Ala Val Thr Ile Asp Glu Pro Thr Ala His Gly Tyr Tyr  
 530 535 540

Gly Gly Val Val Ala Gly Pro Pro Phe Lys Lys Ile Met Gly Gly Ser  
 545 550 555 560

Leu Asn Ile Leu Gly Ile Ser Pro Thr Lys Pro Leu Thr Ala Ala Ala

565

570

575

Val Lys Thr Pro Ser  
580

&lt;210&gt; 2693

&lt;211&gt; 1548

&lt;212&gt; DNA

&lt;213&gt; Neisseria gonorrhoeae

&lt;400&gt; 2693

```

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aagccggtcc gccgccccgg cgttcccact tatccggctt tgccttataa ttgctttttt 120
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gcctccctcg ccgcacacgc gctcgatacc ggccgcattc cgaaaaacga aatcgctgta 240
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gccgtttccc tgctgcccga cttggacaac ttcgttgcca aaaacatcat ctccggcggc 1500
gacggctggc tggatgcgaa actgatgtgc aaagaacgcc gcgcctga 1548

```

&lt;210&gt; 2694

&lt;211&gt; 515

&lt;212&gt; PRT

&lt;213&gt; Neisseria gonorrhoeae

&lt;400&gt; 2694

```

Val Arg Phe Asn His Phe Ile Met Val Thr Ile Ile Ile Tyr Val Ile
  1             5             10             15

Ser Pro Ala Asn Lys Pro Val Arg Arg Pro Gly Val Pro Thr Tyr Pro
      20             25             30

Ala Leu Pro Tyr Asn Cys Phe Phe Tyr Val Thr Asp Ser Pro Met Asn
  35             40             45

Phe Pro Lys Thr Ala Ala Ser Leu Leu Leu Leu Ala Ser Leu Ala
  50             55             60

```

Ala	His	Ala	Leu	Asp	Thr	Gly	Arg	Ile	Pro	Gln	Asn	Glu	Ile	Ala	Val	65	70	75	80
Tyr	Val	Gln	Glu	Leu	Asp	Ser	Gly	Lys	Val	Ile	Ile	Asp	His	Arg	Ala	85	90	95	
Gly	Ile	Pro	Val	Asn	Pro	Ala	Ser	Thr	Met	Lys	Leu	Val	Thr	Ala	Phe	100	105	110	
Ala	Ala	Phe	Lys	Thr	Phe	Gly	Ser	Asn	Tyr	Arg	Trp	Ala	Thr	Glu	Phe	115	120	125	
Lys	Ser	Asn	Gly	Thr	Val	Asn	Asp	Gly	Thr	Leu	Asp	Gly	Asn	Leu	Tyr	130	135	140	
Trp	Ala	Gly	Ser	Gly	Asp	Pro	Val	Phe	Asn	Gln	Glu	Asn	Leu	Leu	Ala	145	150	155	160
Val	Gln	Arg	Gln	Leu	Arg	Asp	Lys	Gly	Ile	Arg	Asn	Ile	Thr	Gly	Arg	165	170	175	
Leu	Met	Leu	Asp	His	Ser	Leu	Trp	Gly	Glu	Val	Gly	Ser	Pro	Asp	His	180	185	190	
Phe	Glu	Ala	Asp	Ser	Gly	Ser	Pro	Phe	Met	Thr	Pro	Pro	Asn	Pro	Thr	195	200	205	
Met	Leu	Ser	Ala	Gly	Met	Val	Met	Val	Arg	Ala	Glu	Arg	Asn	Ala	Ala	210	215	220	
Gly	Ser	Thr	Asp	Ile	Leu	Thr	Asp	Pro	Pro	Leu	Pro	His	Ile	Phe	Ala	225	230	235	240
Gln	Asn	Asn	Leu	Lys	Ile	Thr	Ala	Ser	Gln	Ala	Ala	Cys	Pro	Ser	Val	245	250	255	
Lys	Lys	Leu	Met	Arg	Ala	Ser	Phe	Ser	Gly	Asn	Thr	Leu	Lys	Leu	Arg	260	265	270	
Gly	Asn	Ile	Pro	Glu	Ser	Cys	Leu	Gly	Lys	Pro	Val	Gly	Val	Arg	Met	275	280	285	
Phe	Ala	Leu	Asp	Glu	Leu	Ile	Arg	Gln	Ser	Phe	Thr	Asn	Arg	Trp	Leu	290	295	300	
Leu	Gly	Gly	Gly	Arg	Ile	Ser	Asp	Gly	Ile	Gly	Ile	Ala	Asp	Thr	Pro	305	310	315	320
Glu	Gly	Ala	Gln	Thr	Leu	Ala	Val	Ala	His	Ser	Lys	Pro	Met	Lys	Glu	325	330	335	
Ile	Leu	Thr	Asp	Met	Asn	Lys	Arg	Ser	Asp	Asn	Leu	Ile	Ala	Arg	Ser	340	345	350	
Val	Phe	Leu	Lys	Leu	Gly	Gly	Asp	Gly	Lys	Leu	Pro	Ala	Val	Ser	Glu				

355	360	365
Gln Ala Ala Ser Ala Val	Arg Arg Glu Leu Ala	Val Ser Gly Ile Asp
370	375	380
Val Ala Asp Leu Val	Leu Glu Asn Gly Ser Gly	Leu Ser Arg Lys Glu
385	390	395 400
Arg Val Thr Ala Arg Met Met	Ala Gln Met Leu Glu Thr	Ala Tyr Phe
	405	410 415
Ser Pro Phe Ala Gln Asp Phe	Ile Asp Thr Leu Pro Ile	Ala Gly Thr
	420	425 430
Asp Gly Thr Leu Arg Asn Arg	Phe Lys Gln Ser Gly Gly	Leu Leu Arg
	435	440 445
Leu Lys Thr Gly Thr Leu Asn	Asn Val Arg Ala Leu Ala	Gly Tyr Trp
	450	455 460
Leu Gly Asp Lys Pro Met Ala	Val Val Val Ile Ile Asn	Ser Gly Arg
	465	470 475 480
Ala Val Ser Leu Leu Pro Asp	Leu Asp Asn Phe Val Ala	Lys Asn Ile
	485	490 495
Ile Ser Gly Gly Asp Gly Trp	Leu Asp Ala Lys Leu Met	Cys Lys Glu
	500	505 510
Arg Arg Ala		
	515	

<210> 2695  
 <211> 1548  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2695

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tatgtaacag	atttacctat	gaatttcccc	aaaacagcgg	cctccctgct	gctgcttctc	180
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tatgtccaag	agcttgacag	cggaaaagtc	atcattgacc	accgctcgga	tgtccccgtc	300
aaccccgctt	ccacaatgaa	actcgttacc	gcgtttgccc	ccttcaaaac	cttcggcagc	360
aattaccgct	gggcgaccga	gtttaaaagc	aacgggtacg	taaacgacgg	cacgcttgac	420
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aaccactggc	tgctcggcgg	cggacggatt	tcagacggta	tcggcatagc	cgacacgccg	960
gaaggcgcgc	agacacttgc	cgttgcacac	gccaaaccga	tgaaagaaat	tttgacggac	1020
atgaacaagc	gttcggacaa	tctaattgcg	cgttccgtct	tcctcaaact	cggcggcgac	1080

```

ggcaaaactgc cgcgcgtttc cgaacaggcg gcgtctgccg tccggcgcgga acttgccgta 1140
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```

<210> 2696

<211> 515

<212> PRT

<213> Neisseria meningitidis

<400> 2696

```

Val Arg Leu Asn His Phe Ile Met Ile Ala Ile Ile Ile Tyr Val Ile
  1              5              10              15

```

```

Ser Pro Ala Asn Lys Pro Ala Arg Arg His Ser Val Pro Thr Tyr Pro
      20              25              30

```

```

Ala Leu Pro Tyr Asn Cys Phe Phe Tyr Val Thr Asp Leu Pro Met Asn
      35              40              45

```

```

Phe Pro Lys Thr Ala Ala Ser Leu Leu Leu Leu Leu Ala Ser Leu Ala
      50              55              60

```

```

Ala His Ala Leu Asp Thr Gly Arg Ile Pro Gln Asn Glu Ile Ala Val
      65              70              75              80

```

```

Tyr Val Gln Glu Leu Asp Ser Gly Lys Val Ile Ile Asp His Arg Ser
      85              90              95

```

```

Asp Val Pro Val Asn Pro Ala Ser Thr Met Lys Leu Val Thr Ala Phe
     100              105              110

```

```

Ala Ala Phe Lys Thr Phe Gly Ser Asn Tyr Arg Trp Ala Thr Glu Phe
     115              120              125

```

```

Lys Ser Asn Gly Thr Val Asn Asp Gly Thr Leu Asp Gly Asn Leu Tyr
     130              135              140

```

```

Trp Ala Gly Ser Gly Asp Pro Val Phe Asn Gln Glu Asn Leu Leu Asp
     145              150              155              160

```

```

Ala Gln Lys Gln Leu Arg Glu Gln Gly Ile Leu Asn Ile Thr Gly His
     165              170              175

```

```

Leu Met Leu Asp His Ser Leu Trp Gly Glu Val Gly Ser Pro Asp Asp
     180              185              190

```

```

Phe Glu Ala Asp Ser Gly Ser Pro Phe Met Thr Pro Pro Asn Pro Thr
     195              200              205

```

```

Met Leu Ser Ala Gly Met Val Met Val Arg Ala Glu Arg Asn Ala Ala
     210              215              220

```



Gly Ser Thr Asp Ile Leu Thr Asp Pro Pro Leu Pro His Ile Phe Ala  
 225 230 235 240  
 Gln Asn Asn Leu Lys Ile Thr Ala Ser Gln Ala Ala Cys Pro Ser Ile  
 245 250 255  
 Lys Lys Leu Met Arg Ala Ser Phe Ser Asp Asn Thr Leu Lys Leu Arg  
 260 265 270  
 Gly Asn Ile Pro Glu Ser Cys Leu Gly Lys Pro Val Gly Val Arg Met  
 275 280 285  
 Phe Ala Leu Asp Glu Leu Ile Arg Gln Ser Phe Thr Asn His Trp Leu  
 290 295 300  
 Leu Gly Gly Gly Arg Ile Ser Asp Gly Ile Gly Ile Ala Asp Thr Pro  
 305 310 315 320  
 Glu Gly Ala Gln Thr Leu Ala Val Ala His Ala Lys Pro Met Lys Glu  
 325 330 335  
 Ile Leu Thr Asp Met Asn Lys Arg Ser Asp Asn Leu Ile Ala Arg Ser  
 340 345 350  
 Val Phe Leu Lys Leu Gly Gly Asp Gly Lys Leu Pro Ala Val Ser Glu  
 355 360 365  
 Gln Ala Ala Ser Ala Val Arg Arg Glu Leu Ala Val Ser Gly Ile Asp  
 370 375 380  
 Val Ala Asp Leu Val Leu Glu Asn Gly Ser Gly Leu Ser Arg Lys Glu  
 385 390 395 400  
 Arg Val Thr Ala Arg Met Met Ala Gln Met Leu Glu Thr Ala Tyr Phe  
 405 410 415  
 Ser Pro Phe Ala Gln Asp Phe Ile Asp Thr Leu Pro Ile Ala Gly Thr  
 420 425 430  
 Asp Gly Thr Leu Arg Asn Arg Phe Lys Gln Ser Gly Gly Leu Leu Arg  
 435 440 445  
 Leu Lys Thr Gly Thr Leu Asn Asn Val Arg Ala Leu Ala Gly Tyr Trp  
 450 455 460  
 Leu Gly Asp Lys Pro Met Ala Val Val Val Ile Ile Asn Ser Gly Arg  
 465 470 475 480  
 Ala Val Ser Leu Leu Pro Asp Leu Asp Asn Phe Val Ala Asn Asn Ile  
 485 490 495  
 Ile Ser Gly Gly Asp Gly Trp Leu Asp Ala Lys Leu Met Cys Lys Glu  
 500 505 510  
 Arg Arg Ala  
 515

<210> 2697  
 <211> 1548  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2697  
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 aagccggccc gccgccacag cgttcccact tatccggctt tgccttataa ttgctttttt 120  
 tatgtaacag atttacctat gaatttcccc aaaacagcgg cctccctgct gctgcttctc 180  
 gcctccctcg ccgcacacgc gctcgatata ggctcgattc cgcaaaacga aatcgccgta 240  
 tatgtccaag agcttgacag cggaaaagtc atcattgacc accgctcgga tgtccccgtc 300  
 aaccccgctt ccacaatgaa actcgttacc gcgtttgccc ctttcaaaac cttcggcagc 360  
 aattaccgct gggcgaccga gtttaaaagc aacggtagcg taaacgacgg cagccttgac 420  
 ggaaacctgt attgggcggg cagcggcgac cccgttttca atcaggaaaa cctgcttgcc 480  
 gtccaacgcc agttgcgcga acaaggcata cgcaatatca cgggacacct gatgctcgac 540  
 cacagcctgt ggggcgaagt cggcagcccc gacgatttcg aagccgacag cggttcgcgc 600  
 tttatgacgc cccccaatcc aactatgctg tctgccggta tggttatggt gcgcgccgaa 660  
 cgcaatgccg ccgacagtac cgacatcctc accgatccgc ctttgccgca ttttttcgcc 720  
 caaaaacaact tgaaaattac cgccctccaa gctgcctgcc cttcgatcaa aaaactgatg 780  
 cgtgcatctt tttcggacaa tacgctgaaa ttgcgcggca atattcccga gagctgtttg 840  
 ggcaagcctg tcggtgtccg gatgttcgcg cttgacgaac tgatccggca aagttttacc 900  
 aaccactggc tgctcggcgg cggacggatt tcagacggca tcggcatatc cgacacgccg 960  
 gaaggcgcgc agacgcttgc cgttgacacac tcaaagccga tgaaggaaat tttgacggac 1020  
 atgaacaagc gttcggacaa tctaattgcg cgttccgtct tcctcaaaact cggcgggcgac 1080  
 ggcaaatgca ccgccgtttc cgaacaggca gcgtctgccg tccggcggtga acttgccgtg 1140  
 tcgggcatcg atgttgccga tttggttttg gaaaacgggt caggtctgtc cagaaaagaa 1200  
 agggtaacgg cgagaatgat ggccgaaatg ttggaaacgg cttatttcag cccgtttgca 1260  
 caagatttca tcgatacgct gcccatcgcc ggacacagcg ggactttacg caaccgcttc 1320  
 aaacaaaagc gcgggctgtt gcgcttaaaa accggcacgc tcaacaatgt ccgcgccctt 1380  
 gcaggttatt ggctgggcga caaacgatg gcggtggtcg tcatcatcaa cagcggccgc 1440  
 gccgtttccc tgctgcccgca cttggacaac ttcgttgcca acaacatcat ctccggcggc 1500  
 gatggctggc tggatgcgaa actgatgtgc aaagaacgcc gagcctga 1548

<210> 2698  
 <211> 515  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2698  
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 Ser Pro Ala Asn Lys Pro Ala Arg Arg His Ser Val Pro Thr Tyr Pro  
 20 25 30  
 Ala Leu Pro Tyr Asn Cys Phe Phe Tyr Val Thr Asp Leu Pro Met Asn  
 35 40 45  
 Phe Pro Lys Thr Ala Ala Ser Leu Leu Leu Leu Ala Ser Leu Ala  
 50 55 60  
 Ala His Ala Leu Asp Thr Gly Arg Ile Pro Gln Asn Glu Ile Ala Val  
 65 70 75 80

Tyr Val Gln Glu Leu Asp Ser Gly Lys Val Ile Ile Asp His Arg Ser  
85 90 95  
Asp Val Pro Val Asn Pro Ala Ser Thr Met Lys Leu Val Thr Ala Phe  
100 105 110  
Ala Ala Phe Lys Thr Phe Gly Ser Asn Tyr Arg Trp Ala Thr Glu Phe  
115 120 125  
Lys Ser Asn Gly Thr Val Asn Asp Gly Thr Leu Asp Gly Asn Leu Tyr  
130 135 140  
Trp Ala Gly Ser Gly Asp Pro Val Phe Asn Gln Glu Asn Leu Leu Ala  
145 150 155 160  
Val Gln Arg Gln Leu Arg Glu Gln Gly Ile Arg Asn Ile Thr Gly His  
165 170 175  
Leu Met Leu Asp His Ser Leu Trp Gly Glu Val Gly Ser Pro Asp Asp  
180 185 190  
Phe Glu Ala Asp Ser Gly Ser Pro Phe Met Thr Pro Pro Asn Pro Thr  
195 200 205  
Met Leu Ser Ala Gly Met Val Met Val Arg Ala Glu Arg Asn Ala Ala  
210 215 220  
Asp Ser Thr Asp Ile Leu Thr Asp Pro Pro Leu Pro His Ile Phe Ala  
225 230 235 240  
Gln Asn Asn Leu Lys Ile Thr Ala Ser Gln Ala Ala Cys Pro Ser Ile  
245 250 255  
Lys Lys Leu Met Arg Ala Ser Phe Ser Asp Asn Thr Leu Lys Leu Arg  
260 265 270  
Gly Asn Ile Pro Glu Ser Cys Leu Gly Lys Pro Val Gly Val Arg Met  
275 280 285  
Phe Ala Leu Asp Glu Leu Ile Arg Gln Ser Phe Thr Asn His Trp Leu  
290 295 300  
Leu Gly Gly Gly Arg Ile Ser Asp Gly Ile Gly Ile Ser Asp Thr Pro  
305 310 315 320  
Glu Gly Ala Gln Thr Leu Ala Val Ala His Ser Lys Pro Met Lys Glu  
325 330 335  
Ile Leu Thr Asp Met Asn Lys Arg Ser Asp Asn Leu Ile Ala Arg Ser  
340 345 350  
Val Phe Leu Lys Leu Gly Gly Asp Gly Lys Leu Pro Ala Val Ser Glu  
355 360 365  
Gln Ala Ala Ser Ala Val Arg Arg Glu Leu Ala Val Ser Gly Ile Asp  
370 375 380

Val Ala Asp Leu Val Leu Glu Asn Gly Ser Gly Leu Ser Arg Lys Glu  
 385 390 395 400  
 Arg Val Thr Ala Arg Met Met Ala Gln Met Leu Glu Thr Ala Tyr Phe  
 405 410 415  
 Ser Pro Phe Ala Gln Asp Phe Ile Asp Thr Leu Pro Ile Ala Gly Thr  
 420 425 430  
 Asp Gly Thr Leu Arg Asn Arg Phe Lys Gln Ser Gly Gly Leu Leu Arg  
 435 440 445  
 Leu Lys Thr Gly Thr Leu Asn Asn Val Arg Ala Leu Ala Gly Tyr Trp  
 450 455 460  
 Leu Gly Asp Lys Pro Met Ala Val Val Val Ile Ile Asn Ser Gly Arg  
 465 470 475 480  
 Ala Val Ser Leu Leu Pro Asp Leu Asp Asn Phe Val Ala Asn Asn Ile  
 485 490 495  
 Ile Ser Gly Gly Asp Gly Trp Leu Asp Ala Lys Leu Met Cys Lys Glu  
 500 505 510  
 Arg Arg Ala  
 515

<210> 2699  
 <211> 1172  
 <212> DNA  
 <213> *Neisseria gonorrhoeae*

<400> 2699  
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 gcgcgctttt tgcgcgcctg cctgcaaaat ctcttcgatt tgcgaaggat tagagggtcaa 180  
 tgcgtttgtag cgttcgcgca gttctgccaa ttcggcgttg attttcgccg ccgaaagtgt 240  
 tttcgcctcg cccaagcca agccgtcggc aagcatttgc gtaaattccg ccgtttcaga 300  
 cggcgtggag aaggctttat agatttcaaa caaagggctt tcgtcgggct gtttcggctc 360  
 gcccggtctt ttcattgttg taatgatttt gttgaccgat ttttggttt ttttgctggt 420  
 ttcccaaagc ggaatggtat tgccgtagga tttggacatt ttgcgtccgt ccaaaccgac 480  
 caagagttcg acgttttcgt cgattttcac ttcgggcagg gtgaagagtt cttggaaacc 540  
 gtgggtgaag cggccggcaa tgcgcgcgc catttcgacg tgttggttt ggtcgcgccc 600  
 gacggggact tcgttggcgt tgaacatcaa aatgtcggca gtcatacaga tcggataact 660  
 gaacaaaccc atttccacac cgaaatcggg gtcttctgc ccgttttccg cattggcttg 720  
 aacggcggct ttgtaggcgt gggcgcggtt catcaaacc ttggcgtga tgcaggtcag 780  
 aatccagttc aactccatca cttcgggaat gtcgctttg cggtagaagg tgggtgcgctc 840  
 ggggtcagat ccgcaggcaa gccaaagtggc ggcaacggct tgggtggatt ggtgaatcat 900  
 ctctgtctcg tggcatttga tgatgccgtg gtaatcggcg aggaagagga aggattcggg 960  
 atcgggggtt tgcgcgcgcg ggacggcggg gcggatggcg ccgacgtagt tgcccagatg 1020  
 cggggtgccg gtggtggtta cgccggtcag aactcgtttt ttgctcataa aaatgtcctt 1080  
 acggcagcaa tgccgtctga aagggaaaag atgcgccgat tatacccgat ttgccacata 1140  
 catccagccg acaacagact tttccatatt aa 1172

<210> 2700

<211> 390  
<212> PRT  
<213> Neisseria gonorrhoeae

<400> 2700

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Ala	Leu	Gly	Leu	Phe	Gln	Arg	Ala	Asp	Ala	Asp	Arg	Ile	Ala	Tyr	Phe
			20					25					30		
Ile	Gln	Gln	Phe	Ala	Arg	Phe	Phe	Ala	Arg	Phe	Leu	Arg	Ala	Cys	Leu
		35					40					45			
Gln	Asn	Leu	Phe	Asp	Leu	Arg	Arg	Ile	Arg	Gly	Gln	Cys	Val	Val	Ala
	50					55					60				
Phe	Ala	Gln	Phe	Cys	Gln	Phe	Gly	Val	Asp	Phe	Arg	Arg	Arg	Lys	Phe
	65				70					75					80
Phe	Arg	Leu	Ala	Pro	Ser	Gln	Ala	Val	Gly	Lys	His	Leu	Arg	Lys	Phe
				85					90					95	
Arg	Arg	Phe	Arg	Arg	Arg	Gly	Glu	Gly	Phe	Ile	Asp	Phe	Lys	Gln	Arg
			100					105					110		
Ala	Phe	Val	Gly	Leu	Phe	Arg	Leu	Ala	Arg	Leu	Phe	His	Val	Gly	Asn
		115					120					125			
Asp	Phe	Val	Asp	Arg	Phe	Leu	Gly	Phe	Phe	Val	Val	Phe	Pro	Lys	Arg
	130					135					140				
Asn	Gly	Ile	Ala	Val	Gly	Phe	Gly	His	Phe	Ala	Ser	Val	Gln	Thr	Asp
145					150					155					160
Gln	Glu	Phe	Asp	Val	Phe	Val	Asp	Phe	His	Phe	Gly	Gln	Gly	Glu	Glu
				165					170					175	
Phe	Leu	Glu	Thr	Val	Gly	Glu	Ala	Ala	Gly	Asn	Val	Ala	Arg	His	Phe
			180					185					190		
Asp	Val	Leu	Asp	Leu	Val	Ala	Pro	Asp	Gly	Asp	Phe	Val	Gly	Val	Glu
		195					200					205			
His	Gln	Asn	Val	Gly	Ser	His	Gln	Asn	Arg	Ile	Thr	Glu	Gln	Thr	His
	210					215					220				
Phe	His	Thr	Glu	Ile	Gly	Val	Phe	Leu	Pro	Val	Phe	Arg	Ile	Gly	Leu
225					230					235					240
Asn	Gly	Gly	Phe	Val	Gly	Val	Gly	Ala	Val	His	Gln	Thr	Leu	Gly	Gly
				245					250					255	
Asp	Ala	Gly	Gln	Asn	Pro	Val	Gln	Leu	His	His	Phe	Gly	Asn	Val	Ala
			260					265					270		
Leu	Ala	Val	Glu	Gly	Gly	Ala	Leu	Gly	Val	Glu	Ser	Ala	Gly	Lys	Pro

275	280	285
Ser Gly Gly Asn Gly Leu Gly Gly Leu Val Asn His Leu Leu Leu Val		
290	295	300
Ala Phe Asp Asp Ala Val Val Ile Gly Glu Glu Glu Glu Gly Phe Gly		
305	310	315
Ile Gly Val Leu Arg Arg Ala Asp Gly Gly Ala Asp Gly Ala Asp Val		
	325	330
Val Ala Gln Met Arg Gly Ala Gly Gly Gly Tyr Ala Gly Gln Asn Ser		
	340	345
Phe Phe Ala His Lys Asn Val Leu Thr Ala Ala Met Pro Ser Glu Arg		
	355	360
Glu Lys Asp Ala Pro Ile Ile Pro Asp Leu Pro His Thr Ser Ser Arg		
	370	375
Gln Gln Thr Phe Pro Tyr		
385	390	

<210> 2701  
 <211> 1160  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2701  
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 gcgcctgcct gcaaaatctc ttcgatttgc gaagggtcgg cggtcagctc gttgtagcgt 180  
 tcgcgcggtt cggcgagtgc gccgttgatt ttgcgcgcca aaagtttttt ggcttcaccc 240  
 cacgccaaag cgtcggcaag cattttcgta aattccaccg tttcagacgg cgtggagaag 300  
 gctttgtaga tttcaaacaa tgggctttcg tcgggctggt tcggctcgcc cggctctttc 360  
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 atggtgttgc cgtaggattt ggacattttg cgtccgtcca aaccgaccaa gagttcgacg 480  
 ttttcatcga ttttcaactc gggcagggtg aagagttccc ggaagcgggt gttgaagcgg 540  
 ccggcgatgt cgcgcgccat ttcgacgtgt tggatttggc cgcgcccgcg gggcacttcg 600  
 ttggcgttga acatcagaat atcggcagtc atcagaatcg gataactgaa caaacccatt 660  
 tccacaccga aatcagggtc ttcctgcccg ttttctgcat ttgcctgcac ggcggttttg 720  
 taggcatggg cgcggttcat caaaccttg gcagtgatgc aggtcagaat ccagttcaat 780  
 tccatcactt cgggagtgtc gctttggcgg tagaagggtg tgcgctcggg gtcgagtcgg 840  
 caggcaagcc aagtggcggc aacggcttgg gtggattggt gaatcatctc cggctcgtgg 900  
 catttgatga taccgtggta atcggcgagg aagaggaagg attcgggtatc gaggttttgc 960  
 gccgcgcgga cggcggggcg gatggcgcgg acgtagttgc ccagatgcgg gatgccggtg 1020  
 gtggttacgc cggtcagaac tcgttttttg ctcataaaaa tgccttgcg gcatcaatgc 1080  
 cgtctgaaag ggaaaaagat gtgccgatta tacccgattt gccacctaca tccagccgac 1140  
 aacagacttt tccatattaa 1160

<210> 2702  
 <211> 385  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2702

Met	Pro	Ser	Glu	Thr	Arg	Gln	Ala	Glu	Val	Arg	Thr	Ala	Ser	Gly	Ser
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Phe	Gln	Arg	Ala	Asp	Ala	Asp	Arg	Ile	Xaa	Tyr	Phe	Val	Gln	Phe	Ala
			20					25					30		
Cys	Phe	Phe	Thr	Arg	Phe	Arg	Arg	Ala	Cys	Leu	Gln	Asn	Leu	Phe	Asp
		35					40					45			
Leu	Arg	Arg	Val	Gly	Gly	Gln	Leu	Val	Val	Ala	Phe	Ala	Arg	Phe	Gly
	50					55					60				
Glu	Phe	Gly	Val	Asp	Phe	Arg	Arg	Gln	Lys	Phe	Phe	Gly	Phe	Thr	Pro
65					70					75					80
Arg	Gln	Ala	Val	Gly	Lys	His	Phe	Arg	Lys	Phe	His	Arg	Phe	Arg	Arg
				85					90					95	
Arg	Gly	Glu	Gly	Phe	Val	Asp	Phe	Lys	Gln	Trp	Ala	Phe	Val	Gly	Leu
			100					105						110	
Phe	Arg	Leu	Ala	Arg	Leu	Phe	His	Ile	Gly	Asp	Asp	Phe	Val	Asp	Arg
		115					120					125			
Phe	Leu	Gly	Phe	Phe	Val	Val	Phe	Pro	Lys	Arg	Asn	Gly	Val	Ala	Val
	130					135					140				
Gly	Phe	Gly	His	Phe	Ala	Ser	Val	Gln	Thr	Asp	Gln	Glu	Phe	Asp	Val
145					150					155					160
Phe	Ile	Asp	Phe	His	Phe	Gly	Gln	Gly	Glu	Glu	Phe	Pro	Glu	Ala	Val
				165					170					175	
Val	Glu	Ala	Ala	Gly	Asp	Val	Ala	Arg	His	Phe	Asp	Val	Leu	Asp	Leu
			180					185					190		
Val	Ala	Pro	Asp	Gly	His	Phe	Val	Gly	Val	Glu	His	Gln	Asn	Ile	Gly
		195					200					205			
Ser	His	Gln	Asn	Arg	Ile	Thr	Glu	Gln	Thr	His	Phe	His	Thr	Glu	Ile
	210					215					220				
Arg	Val	Phe	Leu	Pro	Val	Phe	Cys	Ile	Cys	Leu	His	Gly	Gly	Phe	Val
225					230					235					240
Gly	Met	Gly	Ala	Val	His	Gln	Thr	Leu	Gly	Ser	Asp	Ala	Gly	Gln	Asn
				245					250					255	
Pro	Val	Gln	Phe	His	His	Phe	Gly	Ser	Val	Ala	Leu	Ala	Val	Glu	Gly
			260					265					270		
Gly	Ala	Leu	Gly	Val	Glu	Ser	Ala	Gly	Lys	Pro	Ser	Gly	Gly	Asn	Gly
		275					280					285			
Leu	Gly	Gly	Leu	Val	Asn	His	Leu	Arg	Leu	Val	Ala	Phe	Asp	Asp	Thr
	290					295					300				

Val Val Ile Gly Glu Glu Glu Gly Phe Gly Ile Glu Val Leu Arg  
 305 310 315 320

Arg Ala Asp Gly Gly Ala Asp Gly Ala Asp Val Val Ala Gln Met Arg  
 325 330 335

Asp Ala Gly Gly Gly Tyr Ala Gly Gln Asn Ser Phe Phe Ala His Lys  
 340 345 350

Asn Val Leu Ala Ala Ser Met Pro Ser Glu Arg Glu Lys Asp Val Pro  
 355 360 365

Ile Ile Pro Asp Leu Pro Pro Thr Ser Ser Arg Gln Gln Thr Phe Pro  
 370 375 380

Tyr  
 385

<210> 2703  
 <211> 1137  
 <212> DNA  
 <213> Neisseria meningitidis

<400> 2703

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gatttgcgaa	gggtcggcgg	tcagctcggt	gtagcggtcg	cgcgggttcg	cgagttcggc	180
gttgattttc	gccgccaaaa	gtttttttgc	ctcgcccaa	gccaagccgt	cggcaagcat	240
tttcgtaaat	tctgccgttt	cagacggcgt	ggagaaagct	ttgtagattt	caaacagagg	300
gctttcgtcg	ggcttcttcg	gctcgcccg	ctctttcata	ttggtgatga	ttttgttgac	360
cgatttttgg	gtttttttgt	cgttttccca	aagcggaatg	gtggtgccgt	aggatttgga	420
cattttgctg	ccgtccaaac	caaccaagag	ttcgacgttt	tcgtcgattt	tcacttcggg	480
cagtgtgaag	agttcccggg	agcgggtggt	gaagcggccg	gcaatatcgc	gtgccatttc	540
aacgtgttgg	atttggtcgc	gaccgactgg	aacttcattg	gcattgaaca	tgagaatgtc	600
ggcagtcatt	aggatagggg	agctgtacaa	acccatttcc	acgcggaaat	cgggggtctc	660
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ggcgaggga	aggaaggatt	cggtatcagg	gttttgcgcc	gcgcggacgg	cggggcggat	960
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ttttttgctc	ataaaaatgt	ccttgccgca	tcaatgccgt	ctgaaaggga	aaaagatgcg	1080
ccgattatac	ccgatttgcc	acctacatcc	agccgacaac	agacttttcc	atatttaa	1137

<210> 2704  
 <211> 377  
 <212> PRT  
 <213> Neisseria meningitidis

<400> 2704

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Ile Thr Tyr Phe Ala Gln Phe Ala Cys Phe Phe Thr Arg Phe Leu Arg



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Ala	Cys	Leu	Gln	Asn	Leu	Phe	Asp	Leu	Arg	Arg	Val	Gly	Gly	Gln	Leu	
		35					40					45				
Val	Val	Ala	Phe	Ala	Arg	Phe	Gly	Glu	Phe	Gly	Val	Asp	Phe	Arg	Arg	
50						55					60					
Gln	Lys	Phe	Phe	Cys	Leu	Ala	Pro	Ser	Gln	Ala	Val	Gly	Lys	His	Phe	
65					70					75						80
Arg	Lys	Phe	Cys	Arg	Phe	Arg	Arg	Arg	Gly	Glu	Ser	Phe	Val	Asp	Phe	
				85					90							95
Lys	Gln	Arg	Ala	Phe	Val	Gly	Leu	Leu	Arg	Leu	Ala	Arg	Leu	Phe	His	
		100						105					110			
Ile	Gly	Asp	Asp	Phe	Val	Asp	Arg	Phe	Leu	Gly	Phe	Phe	Val	Val	Phe	
		115					120					125				
Pro	Lys	Arg	Asn	Gly	Val	Ala	Val	Gly	Phe	Gly	His	Phe	Ala	Ser	Val	
130						135					140					
Gln	Thr	Asn	Gln	Glu	Phe	Asp	Val	Phe	Val	Asp	Phe	His	Phe	Gly	Gln	
145					150					155					160	
Cys	Glu	Glu	Phe	Pro	Glu	Ala	Val	Val	Glu	Ala	Ala	Gly	Asn	Ile	Ala	
				165					170							175
Cys	His	Phe	Asn	Val	Leu	Asp	Leu	Val	Ala	Thr	Asp	Trp	Asn	Phe	Met	
		180						185					190			
Gly	Ile	Glu	His	Glu	Asn	Val	Gly	Ser	His	Glu	Asp	Arg	Val	Ala	Val	
		195					200					205				
Gln	Thr	His	Phe	His	Ala	Glu	Ile	Gly	Val	Phe	Leu	Pro	Val	Phe	Arg	
210						215					220					
Ile	Cys	Leu	His	Gly	Gly	Phe	Val	Gly	Val	Gly	Ala	Val	His	Gln	Thr	
225					230					235					240	
Leu	Gly	Gly	Asp	Ala	Gly	Gln	Asn	Pro	Val	Gln	Phe	His	His	Phe	Gly	
				245					250							255
Asn	Val	Ala	Leu	Thr	Val	Glu	Gly	Gly	Ala	Leu	Gly	Val	Glu	Ser	Ala	
		260						265					270			
Gly	Lys	Pro	Ser	Gly	Gly	Asn	Gly	Leu	Gly	Gly	Leu	Val	Asn	His	Leu	
		275					280					285				
Arg	Leu	Val	Ala	Phe	Asp	Asp	Thr	Val	Val	Ile	Gly	Glu	Glu	Glu	Glu	
290						295					300					
Gly	Phe	Gly	Ile	Arg	Val	Leu	Arg	Arg	Ala	Asp	Gly	Gly	Ala	Asp	Ser	
305					310					315					320	
Thr	Asp	Val	Val	Ala	Gln	Met	Arg	Asp	Ala	Gly	Gly	Gly	Tyr	Ala	Gly	

325

330

335

Gln Asn Ser Phe Phe Ala His Lys Asn Val Leu Ala Ala Ser Met Pro  
 340 345 350

Ser Glu Arg Glu Lys Asp Ala Pro Ile Ile Pro Asp Leu Pro Pro Thr  
 355 360 365

Ser Ser Arg Gln Gln Thr Phe Pro Tyr  
 370 375

&lt;210&gt; 2705

&lt;211&gt; 810

&lt;212&gt; DNA

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 2705

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&lt;210&gt; 2706

&lt;211&gt; 269

&lt;212&gt; PRT

&lt;213&gt; Neisseria meningitidis

&lt;400&gt; 2706

Met Pro Asp Phe Ser Met Ser Asn Leu Ala Val Ala Phe Ser Ile Thr  
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Leu Ala Ala Gly Leu Phe Thr Val Leu Xaa Ser Gly Leu Val Met Phe  
 20 25 30

Ser Lys Thr Pro Asn Pro Arg Val Leu Ser Phe Gly Leu Ala Phe Ala  
 35 40 45

Gly Gly Ala Met Val Tyr Val Ser Leu Thr Glu Ile Phe Ser Lys Ser  
 50 55 60

Ser Glu Ala Phe Ala Glu Ile Tyr Asp Lys Asp His Ala Phe Ala Ala  
 65 70 75 80

Ala Thr Met Ala Phe Leu Ala Gly Met Gly Gly Ile Ala Leu Ile Asp  
 85 90 95